

REPORT NUMBER: 208-MGA-2004-012

**VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY**

**Hyundai Motor Company
2004 Hyundai Elantra 4 Door
NHTSA No.: C40510**

**PREPARED BY:
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Test Dates: March 22 – August 27, 2004

Final Report Date: October 1, 2004

FINAL REPORT

**PREPARED FOR:
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OFFICE OF ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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Prepared  Date: October 1, 2004
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Reviewed by:  Date: October 1, 2004
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Acceptance Date: _____

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16. <i>Abstract</i> Compliance tests were conducted on the subject 2004 Hyundai Elantra 4 Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-12 for the determination of FMVSS 208 compliance. Test failures identified were as follows: TEST FAILURES: The passenger air bag did not deploy. The Hyundai Elantra was tested as an advanced air bag vehicle. According to Hyundai the test vehicle was not certified as an advanced air bag vehicle. The crash test in this report was an advanced air bag vehicle 40 kmph barrier test with unbelted 5th percentile female dummies. Even though the passenger dummy injury measures were higher than the injury assessment reference values for a 5th percentile female dummy, this is not a test failure because the vehicle was not certified by Hyundai to meet those requirements. The areas of indicant test failure follow: S.15.3.6 (a) Neck Injury (Critical values: Tension = 4287N, Compression = 3880N; Flexion = 155Nm, Extension = 67Nm) The Neck Injury value shall not exceed 1.0 at any time during the event. The 5 th % Passenger Dummy SN506 had a Tension Flexion Neck Injury of 1.7 at a 92 ms time and a Compression Flexion Neck Injury of 2.0 at a 105.3 ms time during the 25mph unbelted frontal impact test. S.15.3.2 (b) HIC 15 shall not exceed 700 at any time during the event. The passenger HIC 15 value was 1050.			
17. <i>Key Words</i> Frontal Impact 40 kmph Vehicle Safety Compliance Testing FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219, (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"		18. <i>Distribution Statement</i> Copies of this report are available from the following: NHTSA Technical Information Services (TIS), Mail Code: NPO-230 400 Seventh Street, S.W., Room 5108 Washington, D.C. 20590 Tel. No.: (202) 366-4946	
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SECTION 1

PURPOSE OF COMPLIANCE TEST

The tests performed are part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-03-D-11002. The purpose of this test was to determine whether the subject vehicle, a 2004 Hyundai Elantra 4 Door, NHTSA No. C40510, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-12 dated January 14, 2003.

A 5th percentile female dummy was placed in the center rear designated seating position for the crash test. The data from this position will be used for research and development. This seating position does not have crash test performance requirements.

SECTION 2 TESTS PERFORMED

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance

NHTSA No.: C40510
Test Dates: 3/22 -8/27/04

The following checked items indicate the tests that were performed:

- | | | |
|-------------------------------------|-----|---|
| <input checked="" type="checkbox"/> | 1. | Rear outboard seating position seat belts (S4.1.1.2(b) & (S4.2.4) |
| <input checked="" type="checkbox"/> | 2. | Air bag labels (S4.5.1) |
| <input checked="" type="checkbox"/> | 3. | Readiness indicator (S4.5.2) |
| <input checked="" type="checkbox"/> | 4. | Passenger air bag manual cut-off device (S4.5.4) |
| <input checked="" type="checkbox"/> | 5. | Lap belt lockability (S7.1.1.5) |
| <input checked="" type="checkbox"/> | 6. | Seat belt warning system (S7.3) |
| <input checked="" type="checkbox"/> | 7. | Seat belt contact force (S7.4.4) |
| <input checked="" type="checkbox"/> | 8. | Seat belt latch plate access (S7.4.4) |
| <input checked="" type="checkbox"/> | 9. | Seat belt retraction (S7.4.5) |
| <input checked="" type="checkbox"/> | 10. | Seat belt guides and hardware (S7.4.6) |
| <input checked="" type="checkbox"/> | 11. | Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) |
| <input checked="" type="checkbox"/> | 12. | Suppression tests with newborn infant (Part 572, Subpart K) |
| <input checked="" type="checkbox"/> | 13. | Suppression tests with 3-year-old dummy (Part 572, Subpart P) |
| <input checked="" type="checkbox"/> | 14. | Suppression tests with 6-year-old dummy (Part 572, Subpart N) |
| <input checked="" type="checkbox"/> | 15. | Test of reactivation of the passenger air bag system with an unbelted 5 th percentile female dummy |
| <input type="checkbox"/> | 16. | Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) |
| <input type="checkbox"/> | 17. | Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) |
| <input type="checkbox"/> | 18. | Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) |
| <input checked="" type="checkbox"/> | 19. | Low risk deployment test with 5 th female dummy (Part 572, Subpart O) |
| <input checked="" type="checkbox"/> | 20. | Impact Tests |
| <input type="checkbox"/> | | Frontal Oblique |
| <input type="checkbox"/> | | Belted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a)) |
| <input type="checkbox"/> | | Unbelted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1)) |
| <input type="checkbox"/> | | Unbelted 50 th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b)) |
| <input checked="" type="checkbox"/> | | Frontal 0° |
| <input type="checkbox"/> | | Belted 50 th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a)) |
| <input type="checkbox"/> | | Belted 50 th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a)) |
| <input type="checkbox"/> | | Belted 5 th female dummy driver (0 to 48 kmph) (S16.1(a)) |
| <input type="checkbox"/> | | Belted 5 th female dummy passenger (0 to 48 kmph) (S16.1(a)) |
| <input type="checkbox"/> | | Belted 50 th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2)) |
| <input type="checkbox"/> | | Unbelted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1)) |
| <input type="checkbox"/> | | Unbelted 50 th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b)) |

		Unbelted 50 th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
	X	Unbelted 5 th female dummy driver (32 to 40 kmph) (S16.1(b))
	X	Unbelted 5 th female dummy passenger (32 to 40 kmph) (S16.1(b))
		40% Offset 0° Belted 5 th male dummy driver and passenger (0 to 40 kmph) (S18.1)
	21.	Sled Test: unbelted 50 th male dummy driver and passenger (S13)
	22.	FMVSS 204 Indicant Test
X	23.	FMVSS 212 Indicant Test
X	24.	FMVSS 219 Indicant Test
X	25.	FMVSS 301 Indicant Frontal Test

For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high speed film and high speed digital video.

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance

NHTSA No.: C40510
 Test Dates: 7/15 & 7/29/04

5th Percentile Female Low Risk Deployments

5th Percentile Female SN 506 Position 1 (Chin On Module) 7-15-04

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	4
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	10.9
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	7.1
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	219.3
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	4.5
Neck Tension	2070 N	697
Neck Compression	2520 N	7
Chest g	60 g	7
Chest Displacement	52 mm	6
Left Femur	6805 N	54
Right Femur	6805 N	87

Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

5th Percentile Female SN 505 Position 2 (Chin On Rim) 7-29-04

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	11
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	17.0
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	30.6
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	190.5
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	93.4
Neck Tension	2070 N	910
Neck Compression	2520 N	52
Chest g	60 g	25
Chest Displacement	52 mm	21
Left Femur	6805 N	316
Right Femur	6805 N	360

Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

SECTION 3...(continued)

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2004 Hyundai Elantra 4 Door NHTSA No.: C40510
 Test Program: FMVSS 208 Compliance Test Date: 8/27/04

40 kmph Frontal Crash

Impact Angle: Zero degrees

Belted Dummies: X Yes (Rear Passenger) X No (Driver and Front Passenger)
 Speed Range: 0 to 40 kmph X 32 to 40 kmph
 0 to 48 kmph 0 to 56 kmph

Test Speed: 39.8 kmph Test Weight: 1484.6 kg

Driver Dummy: X 5th female 50th male
 Passenger Dummy: X 5th female 50th male
 Center Rear Passenger Dummy: X 5th female 50th male

5th Percentile Female Frontal Crash Test * Vehicles certified to S16.1(a), S16.1(b), or S18.1

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	77	1050
N _{te}	1.0	0.2	0.7
N _{tf}	1.0	0.2	1.7
N _{ce}	1.0	0.1	0.4
N _{cf}	1.0	0.2	2.0
Neck Tension	2620 N	459	3225
Neck Compression	2520 N	510	2780
Chest g	60 g	36	68
Chest Displacement	52 mm	20	5
Left Femur	6805 N	3574	3963
Right Femur	6805 N	2268	2661

* See Discussion of Tests- Page 6

5th Percentile Female Center Rear Passenger Frontal Crash Test

Injury Criteria	Max. Allowable Injury Assessment Values	Center Rear Passenger
HIC15	700	274
N _{te}	1.0	0.6
N _{tf}	1.0	0.7
N _{ce}	1.0	0.7
N _{cf}	1.0	0.0
Neck Tension	2620 N	1740
Neck Compression	2520 N	150
Chest g	60 g	41
Chest Displacement	52 mm	24
Left Femur	6805 N	147
Right Femur	6805 N	137

SECTION 4

DISCUSSION OF TESTS

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance

NHTSA No.: C40510
Test Date: 3/22 - 8/27/04

The vehicle did not meet all performance requirements.

The passenger air bag did not deploy during the 40 kmph barrier test.

The Hyundai Elantra was tested as an advanced air bag vehicle. According to Hyundai the test vehicle was not certified as an advanced air bag vehicle. The crash test in this report was an advanced air bag vehicle 40 kmph barrier test with unbelted 5th percentile female dummies. Even though the passenger dummy injury measures were higher than the injury assessment reference values for a 5th percentile female dummy, this is not a test failure because the vehicle was not certified by Hyundai to meet those requirements. The areas of indicant test failure follow: S.15.3.6 (a) Neck Injury (Critical values: Tension = 4287N, Compression = 3880N; Flexion = 155Nm, Extension = 67Nm) The Neck Injury value shall not exceed 1.0 at any time during the event. The 5th% Passenger Dummy SN506 had a Tension Flexion Neck Injury of 1.7 at a 92 ms time and a Compression Flexion Neck Injury of 2.0 at a 105.3 ms time during the 25mph unbelted frontal impact test. S.15.3.2 (b) HIC 15 shall not exceed 700 at any time during the event. The passenger HIC 15 value was 1050.

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

The Cosco Dream Ride Car Bed was tested for suppression in the Middle and Rearward Seat Slide position. The CRS would not fit in the Forward Seat Slide position due to interference with the transmission shifter. At Middle Seat Slide position its orientation was lateral with the Newborn dummy's head placed to the left hand side of the vehicle. At Rearward Seat Slide position its orientation was 30° with the Newborn dummy's head placed to the left hand side of the vehicle. This was done due to interference with the center console.

A 5th percentile dummy (S/N 516) was positioned as a Center Rear Passenger during the 25 mph frontal crash test. This dummy caused the test weight to be over by approximately 52 kg (115 lbs).

The 5th percentile female dummy placed in the center rear designated seating position during the crash test was used for research and development. There was no posttest calibration check on this dummy. The calibration frequency for dummies with this research usage is one calibration for each three exposures.

There were no other unexpected events or items to discuss.

SECTION 5
TEST DATA SHEETS

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance

NHTSA No.: C40510
Test Dates: 3/22 – 8/27/04

DATA SHEET 1

COTR VEHICLE WORK ORDER

Test Vehicle: 2004 Hyundai Elantra 4 Door

NHTSA No.: C40510

Test Program: FMVSS 208 Compliance

Test Dates: 3/22 – 8/27/04

COTR Signature: Charles R. Case

Test to be performed for this vehicle are checked below:

X	1. Rear Outboard Seating Position Seat Belts (S4.1.2(b)) & (S4.2.4)
X	2. Air Bag Labels (S4.5.1)
X	3. Readiness Indicator (S4.5.2)
X	4. Passenger Air Bag Manual Cut-off Device (S4.5.4)
X	5. Lap Belt Lockability (S7.1.1.5)
X	6. Seat Belt Warning System (S7.3)
X	7. Seat Belt Contact Force (S7.4.4)
X	8. Seat Belt Latch Plate Access (S7.4.4)
X	9. Seat Belt Retraction (S7.4.5)
X	10. Seat Belt Guides and Hardware (S7.4.6)
X	11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints.

Section B

X	Britax Handle with Care 191	X	Full Rearward	X	Mid Position	X	Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
X	Evenflo First Choice 204	X	Full Rearward	X	Mid Position	X	Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
X	Graco Infant 8457	X	Full Rearward	X	Mid Position	X	Full Forward

Section C

X	Britax Roundabout 161	X	Full Rearward	X	Mid Position	X	Full Forward
X	Century Encore 4612	X	Full Rearward	X	Mid Position	X	Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
X	Evenflo Medallion 254	X	Full Rearward	X	Mid Position	X	Full Forward

X	12. Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints.
----------	---

Section A

X	Cosco Dream Ride 02-719	X	Full Rearward	X	Mid Position	X	Full Forward
X	13. Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required.						

Section C

<input checked="" type="checkbox"/>	Britax Roundabout 161	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
<input checked="" type="checkbox"/>	Century Encore 4612	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century STE 1000 4416	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Olympian 02803	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Touriva 02519	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Horizon V 425	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input checked="" type="checkbox"/>	Evenflo Medallion 254	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward

Section D

<input type="checkbox"/>	Britax Roadster 9004	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input checked="" type="checkbox"/>	Century Next Step 4920	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
<input checked="" type="checkbox"/>	Cosco High Back Booster 02-442	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Right Fit 245	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

- ☐ 14. Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Appendix H, Data Sheet 16H and 17H)

Section C

<input type="checkbox"/>	Britax Roundabout 161	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Encore 4612	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century STE 1000 4416	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Olympian 02803	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Touriva 02519	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Horizon V 425	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Medallion 254	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

Section D

<input type="checkbox"/>	Britax Roadster 9004	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Next Step 4920	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco High Back Booster 02-442	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Right Fit 245	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

- ☒ 15. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following Forward, Middle, and Rearward seat track positions

<input checked="" type="checkbox"/>	Sitting on seat with back against seat back (S22.2.2.1)
<input checked="" type="checkbox"/>	Sitting on seat with back against reclined seat back (S22.2.2.2)
<input checked="" type="checkbox"/>	Sitting on seat with back not against seat back (S22.2.2.3)
<input checked="" type="checkbox"/>	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
<input checked="" type="checkbox"/>	Standing on seat, facing forward (S22.2.2.5)
<input checked="" type="checkbox"/>	Kneeling on seat facing forward (S22.2.2.6)
<input checked="" type="checkbox"/>	Kneeling on seat facing rearward (S22.2.2.7)
<input type="checkbox"/>	Lying on seat (S22.2.2.8)

- ☐ 16. Suppression tests with representative 3-year-old child in the following positions

<input type="checkbox"/>	Sitting on seat with back against seat back (S22.2.2.1)
<input type="checkbox"/>	Sitting on seat with back against reclined seat back (S22.2.2.2)
<input type="checkbox"/>	Sitting on seat with back not against seat back (S22.2.2.3)
<input type="checkbox"/>	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
<input type="checkbox"/>	Standing on seat, facing forward (S22.2.2.5)
<input type="checkbox"/>	Kneeling on seat facing forward (S22.2.2.6)
<input type="checkbox"/>	Kneeling on seat facing rearward (S22.2.2.7)
<input type="checkbox"/>	Lying on seat (S22.2.2.8)

- ☒ 17. Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required.

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
X	Century Next Step 4920	X	Full Rearward	X	Mid Position	X	Full Forward
X	Cosco High Back Booster 02-442	X	Full Rearward	X	Mid Position	X	Full Forward
X	Evenflo Right Fit 245	X	Full Rearward	X	Mid Position	X	Full Forward
18.	Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required.						

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
	Century Next Step 4920		Full Rearward		Mid Position		Full Forward
	Cosco High Back Booster 02-442		Full Rearward		Mid Position		Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward
X	19.	Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following Forward, Middle, and Rearward seat track positions					
	X	Sitting on seat with back against seat back (S22.2.2.1)					
	X	Sitting on seat with back against reclined seat back (S22.2.2.2)					
	X	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)					
	X	Sitting back in the seat and leaning on the right front passenger door (S24.2.3)					
	20.	Suppression tests with representative 6-year-old child in the following positions					
		Sitting on seat with back against seat back (S22.2.2.1)					
		Sitting on seat with back against reclined seat back (S22.2.2.2)					
		Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)					
		Sitting back in the seat and leaning on the right front passenger door (S24.2.3)					
X	21.	Test of Reactivation of the Passenger Air Bag System with an Unbelted 5 th percentile female dummy (S20.3, 22.3, S24.3). Perform this test after the following suppression tests: After each restraint.					
	22.	Test of Reactivation of the passenger air bag system with a representative 5 th percentile female (S20.3, 22.3, S24.3). Perform this test after the following suppression tests:					
	23.	Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints.					

Section B

	Britax Handle with Care 191		Full Rearward		Mid Position		Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
	Evenflo First Choice 204		Full Rearward		Mid Position		Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
	Graco Infant 8457		Full Rearward		Mid Position		Full Forward

Section C

	Britax Roundabout 161		Full Rearward		Mid Position		Full Forward
	Century Encore 4612		Full Rearward		Mid Position		Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward

<input type="checkbox"/>	Cosco Touriva 02519	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Horizon V 425	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Medallion 254	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

☐ 24. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions

- ☐ Position 1
- ☐ Position 2

☐ 25. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions

- ☐ Position 1
- ☐ Position 2

☒ 26. Low risk deployment test with 5th percentile female dummy (Part 572, Subpart O) in the following positions

- ☒ Position 1
- ☒ Position 2

☒ 27. Impact Tests

☐ Frontal Oblique – Test Speed:

- ☐ Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
- ☐ Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
- ☐ Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))

☒ Frontal 0° - Test Speed: 39.8 kmph

- ☐ Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
- ☐ Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
- ☐ Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
- ☐ Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
- ☐ Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
- ☐ Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
- ☐ Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
- ☐ Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
- ☒ Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
- ☒ Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))

☐ 40% Offset 0° Belted 5th male dummy driver and passenger (0 to 40 kmph) (S18.1) – Test Speed:

☐ 28. Sled Test: Unbelted 50th male dummy driver and passenger (S13)

☐ 29. FMVSS 204 Indicant Test

☒ 30. FMVSS 212 Indicant Test

☒ 31. FMVSS 219 Indicant Test

☒ 32. FMVSS 301 Indicant Frontal Test

DATA SHEET 2
REPORT OF VEHICLE CONDITION

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance

NHTSA No.: C40510
Test Dates: 3/22 – 8/27/04

CONTRACT NO. DTNH22- 03-D-11002
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC (NVS-220)

Date: 9/2/04

PURPOSE: () Initial Receipt () Received via Transfer (X) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2004 Hyundai Elantra 4 Door
MANUFACTURE DATE: 8/19/03
NHTSA NO. C40510 GVWR: 1760 kg (3880 lbs)
BODY COLOR: RED GAWR (Fr): 960 kg (2116 lbs)
VIN: KMHDN46D64U733703 GAWR (Rr): 840 kg (1852 lbs)

ODOMETER READINGS: ARRIVAL (miles): 52 DATE: 2/19/04
COMPLETION (miles): 93 DATE: 9/2/04

PURCHASE PRICE: (\$) 13,917.00

DEALER'S NAME: Boucher Hyundai 1421 E. Moreland Blvd. Waukesha WI 53186

- A. All options listed on window sticker are present on the test vehicle:
X Yes No
- B. Tires and wheel rims are new and the same as listed: X Yes No
- C. There are no dents or other interior or exterior flaws: X Yes No
- D. The vehicle has been properly prepared and is in running condition:
X Yes No
- E. Keyless remote is available and working: X Yes No
- F. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys: X Yes No
- G. Proper fuel filler cap is supplied on the test vehicle: X Yes No
- H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:
X Yes No
- I. Place vehicle in storage area: X Yes No
- J. Inspect the vehicle's interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer's specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:
X Vehicle OK Conditions reported below

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 301

VEHICLE: 2004 Hyundai Elantra 4 Door NHTSA NO. C40510

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:

Rear tail lights, tool & jack, both outside mirrors, trunk interior, rear speakers, wheel covers, spare tire, exhaust and muffler

Explanation for equipment removal:

Components removed for instrumentation installation and to meet target weight.

Test Vehicle Condition:

25 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system

RECORDED BY: Jeff Lewandowski DATE: 9/2/04

APPROVED BY: David Winkelbauer DATE: 9/2/04

#####

RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date: Time: Odometer:

Lab Rep's Signature:

Title:

Carrier/Customer Rep:

Date:

DATA SHEET 3**CERTIFICATION LABEL AND TIRE PLACARD INFORMATION**

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Clark Subrt

NHTSA No.: C40510
Test Date: 8/27/04

Certification Label	
Manufacturer:	Hyundai Motor Company
Date of Manufacture:	8/19/03
VIN:	KMHDN46D64U733703
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	Passenger Car
Front Axle GVWR:	960 kg (2116 lbs)
Rear Axle GVWR:	840 kg (1852 lbs)
Total GVWR:	1760 kg (3880 lbs)

Tire Placard	
Not applicable, vehicle is not a passenger car and does not have a tire placard.	Passenger Car
This is not a passenger car, but all or part of this information is still contained on a vehicle label and is reported here.	Passenger Car
Vehicle Capacity Weight:	385 kg (850 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	3
Total Designated Seating Capacity:	5
Recommended Cold Tire Inflation Pressure Front:	210 kpa (30 psi)
Recommended Cold Tire Inflation Pressure Rear:	210 kpa (30 psi)
Recommended Tire Size:	P195/60R16

Signature: 

Date: 8/25/04

DATA SHEET 4

REAR OUTBOARD SEATING POSITION SEAT BELTS

Test Vehicle: 2004 Hyundai Elantra 4 Door

NHTSA No.: C40510

Test Program: FMVSS 208 Compliance

Test Date: 3/22/04

Test Technician: Wayne Dahlke

	Yes	No
Do all rear outboard seating positions have Type 2 seat belts?	X	

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS: NONE

Signature: Wayne Dahlke

Date: 3/22/04

DATA SHEET 5

AIR BAG LABELS (S4.5.1)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/22/04

- | | | |
|-------------------------------------|-----|--|
| <input checked="" type="checkbox"/> | 1. | Air bag maintenance label and owner's manual instructions: (S4.5.1(a)) |
| <input checked="" type="checkbox"/> | 1.1 | Does the manufacturer recommend periodic maintenance or replacement of the air bag? |
| | | <input type="checkbox"/> Yes, go to 1.2 |
| | | <input checked="" type="checkbox"/> No – go to 2 |
| <input type="checkbox"/> | 1.2 | Does the vehicle have a label specifying air bag maintenance or replacement? |
| | | <input type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| <input type="checkbox"/> | 1.3 | Does the label contain one of the following? |
| | | <input type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| | | Check applicable schedule: |
| | | ___ Schedule on label specifies month and year (Record date_____) |
| | | ___ Schedule on label specified vehicle mileage (Record mileage_____) |
| | | ___ Schedule on label specifies interval measured from date on certification label (Record interval_____) |
| <input type="checkbox"/> | 1.4 | Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or the sunvisor? |
| | | <input type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| <input type="checkbox"/> | 1.5 | Is the label lettered in English? |
| | | <input type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| <input type="checkbox"/> | 1.6 | Is the label in block capitals and numerals? |
| | | <input type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| <input type="checkbox"/> | 1.7 | Are the letters and numerals at least 3/32 inches high? |
| | | <input type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| <input type="checkbox"/> | 1.8 | Does the owner's manual set forth the recommended schedule for maintenance or replacement? |
| <input checked="" type="checkbox"/> | 2. | Does the owner's manual: (S4.5.1(f)) |
| <input checked="" type="checkbox"/> | 2.1 | Include a description of the vehicle's air bag system in an easily understandable format? |
| | | <input checked="" type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| <input checked="" type="checkbox"/> | 2.2 | Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position? |
| | | <input checked="" type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |

- ☒ 2.3 Include a statement that the air bag is a supplement restraint at the front outboard seating position?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer from COTR) (S4.5.1(f)(2))
- ☐ Yes – (Go to 2.7.1)
☒ No – (Go to 3.)
- ☐ 2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?
- ☐ Yes, continue with 2.7.6
☐ No, go to 2.7.7
- ☐ 2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))
- ☐ Yes – Pass
☐ No – Fail

<input type="checkbox"/>	2.7.6.2	Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?	<input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	2.7.7	Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))	<input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	2.7.8	Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))	<input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	2.7.9	Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system? (S4.5.1(f)(2)(vii))	<input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	3.	Sun Visor Air Bag Warning Label (S4.5.1(b)) Check only one of the following:	<input checked="" type="checkbox"/> The vehicle is not certified to meet the requirements of S19, S21, and S23 (Obtain answer from COTR) (S4.5.1(b)(1)) Go to 3.1 and skip 3.2 and 3.3 <input type="checkbox"/> The vehicle is certified to meet the requirements of S19, S21, and S23 before 9/1/03. (Obtain answer from COTR) (S4.5.1(b)(2)) Go to 3.2 and skip 3.1 and 3.3 <input type="checkbox"/> The vehicle is certified to meet the requirements of S19, S21, and S23 on 9/1/03 or later. (Obtain answer from COTR) (S4.5.1(b)(3)) Go to 3.3 and skip 3.1 and 3.2
<input checked="" type="checkbox"/>	3.1	Vehicles not certified to meet the requirements of S19, S21, and S23.	
<input checked="" type="checkbox"/>	3.1.1	Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing it? (S4.5.1(b)(1))	<input checked="" type="checkbox"/> Driver Side, Yes – Pass <input type="checkbox"/> Driver Side, No – Fail <input checked="" type="checkbox"/> Passenger Side, Yes – Pass <input type="checkbox"/> Passenger Side, No – Fail

X

3.1.2

Does the label conform in content to the label shown in either Figure 6A or 6B (Figure 6b is for vehicles with passenger air bag on-off switches), as appropriate, at each front outboard seating position? (S4.5.1(b)(1)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(1)(iv))



Figure 6a. Sun Visor Label Visible When Visor is in Down Position.



Figure 6b. Sun Visor Label Visible When Visor is in Down Position.

X

Driver Side, Yes – Pass

Driver Side, No – Fail

X

Passenger Side, Yes – Pass

Passenger Side, No – Fail

X

3.1.3

Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(1)(i))

X

Driver Side, Yes – Pass

Driver Side, No – Fail

X

Passenger Side, Yes – Pass

Passenger Side, No – Fail

X

3.1.4

Is the message area white with black text? (S4.5.1(b)(1)(ii))

X

Driver Side, Yes – Pass

Driver Side, No – Fail

X

Passenger Side, Yes – Pass

Passenger Side, No – Fail

X	3.1.5	Is the message area at least 30 cm ² ? (S4.5.1(b)(1)(ii)) Driver Side: Length <u>8.1cm</u> , Width <u>3.8cm</u> Passenger Side: Length <u>8.1cm</u> , Width <u>3.8cm</u> Actual message area <u>30.78</u> cm ²
X		Driver Side, Yes – Pass
		Driver Side, No – Fail
X		Passenger Side, Yes – Pass
		Passenger Side, No – Fail
X	3.1.6	Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(iii))
X		Driver Side, Yes – Pass
		Driver Side, No – Fail
X		Passenger Side, Yes – Pass
		Passenger Side, No – Fail
X	3.1.7	Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii)) Actual diameter <u>32</u> mm
X		Driver Side, Yes – Pass
		Driver Side, No – Fail
X		Passenger Side, Yes – Pass
		Passenger Side, No – Fail
	3.2	Vehicles certified to meet the requirements of S19, S21, and S23 before 9/1/03.
	3.2.1	Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(2))
		Driver Side, Yes – Pass
		Driver Side, No – Fail
		Passenger Side, Yes – Pass
		Passenger Side, No – Fail



3.2.2

Does the label conform in content to the label shown in either Figure 8 or 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(2)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front."(S4.5.1(b)(2)(v))



Figure 8. Sun Visor Label Visible when Visor is in Down Position.

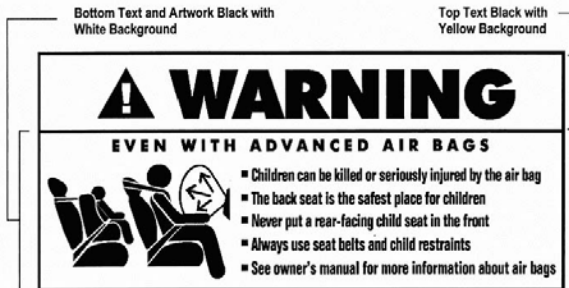


Figure 11. Sun Visor Label Visible when Visor is in Down Position.



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail



3.2.3

Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(2)(i))



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail



3.2.4

Is the message area white with black text? (S4.5.1(b)(2)(ii))



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

- ☐ 3.2.5 Is the message area at least 30 cm²? (S4.5.1(b)(2)(ii))
 Driver Side: Length_____, Width_____
 Passenger Side: Length_____, Width_____
 Actual message area _____ cm²
- ☐ ☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☐ 3.2.6 Is the pictogram black on a white background? (S4.5.1(b)(2)(iii))
- ☐ ☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☐ 3.2.7 Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(2)(iii))
 Driver Side: Length_____
 Passenger Side: Length_____
- ☐ ☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☐ 3.3 Vehicles certified to meet the requirements of S19, S21, and S23 on 9/1/03 and later. (S4.5.1(b)(3))
- ☐ 3.3.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3))
- ☐ ☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☐ 3.3.2 Does the label conform in content to the label shown in either Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(3)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(b)(3)(v))



Figure 11. Sun Visor Label Visible when Visor is in Down Position.

	<input type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input type="checkbox"/>	3.3.3	Is the label heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(b)(3)(i))
	<input type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input type="checkbox"/>	3.3.4	Is the message area white with black text? (S4.5.1(b)(3)(ii))
	<input type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input type="checkbox"/>	3.3.5	Is the message area at least 30 cm ² ? (S4.5.1(b)(3)(ii))
		Driver Side: Length _____, Width _____
		Passenger Side: Length _____, Width _____
		Driver Actual message area _____ cm ²
		Passenger Actual message area _____ cm ²
	<input type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input type="checkbox"/>	3.3.6	Is the pictogram black on a white background? (S4.5.1(b)(3)(iii))
	<input type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input type="checkbox"/>	3.3.7	Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(3)(iii))
		Driver Side: Length _____
		Passenger Side: Length _____
	<input type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input checked="" type="checkbox"/>	3.4	Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail

<input checked="" type="checkbox"/>	3.5	Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input checked="" type="checkbox"/>	3.6	Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?
		<input type="checkbox"/> Yes, go to 3.6.1
		<input checked="" type="checkbox"/> No, go to 4 (skipping 3.6.1 through 3.6.3)
<input type="checkbox"/>	3.6.1	Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?
		<input type="checkbox"/> Yes, go to 3.6.2 and skip 3.6.3
		<input type="checkbox"/> No, go to 3.6.3 and skip 3.6.2
<input type="checkbox"/>	3.6.2	Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))
		<input type="text"/> actual distance
<input type="checkbox"/>	3.6.3	Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A))
		<input type="text"/> actual distance
		<input type="checkbox"/> Yes-Pass <input checked="" type="checkbox"/> No-FAIL
<input checked="" type="checkbox"/>	4.	Air Bag Alert Label (S4.5.1(c) (A “Rollover Warning Label” or “Rollover Alert Label” may be on the same side of the driver’s sun visor as the “Air Bag Alert Label.” 575.105(d))
<input checked="" type="checkbox"/>	4.1	Is the sun visor warning label visible when the sun visor is in the stowed position?
		<input type="checkbox"/> If yes for driver and passenger, go to 5.
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input checked="" type="checkbox"/>	4.2	Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c))
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail

☒ 4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))

- ☒ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☒ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☒ 4.4 Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))



Figure 6c. Sun Visor Label Visible When Visor is in Up Position.

- ☒ Driver Side, Yes – Pass
 - ☐ Driver Side, No – Fail
 - ☒ Passenger Side, Yes – Pass
 - ☐ Passenger Side, No – Fail
- ☒ 4.5 Is the message area black with yellow text? (S4.5.1(c)(1))
- ☒ Driver Side, Yes – Pass
 - ☐ Driver Side, No – Fail
 - ☒ Passenger Side, Yes – Pass
 - ☐ Passenger Side, No – Fail

☒ 4.6 Is the message area at least 20 cm²? (S4.5.1(c)(1))

Driver Side: Length 5.9cm, Width 3.7cm
Passenger Side: Length 5.9cm, Width 3.7cm
Actual message area 21.83 cm²

- ☒ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☒ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☒ 4.7 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))

- ☒ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail

- ☒ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☒ 4.8 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2))
 Driver Side Diameter 30 mm
 Passenger Side Diameter 30 mm
- ☒ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☒ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☒ 5. Label on the Dashboard
- ☒ 5.1 Is the vehicle certified to meet the requirements of S19, S21, and S23? (Obtain answer from COTR) (S4.5.1(3)(2))
- ☐ Yes, go to 5.1.1 and **skip 5.2**
☒ No, go to 5.2, skipping 5.1.1 through 5.1.6
- ☐ 5.1.1 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(2))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 5.1.2 Is the label clearly visible from all front seating positions? (S4.5.1(e)(2))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 5.1.3 Does the label conform in content to the label shown in Figure 9? (S4.5.1(e)(2))
 Vehicles without back seats may omit the statement: “The back seat is the safest place for children.” (S4.5.1(e)(2)(iii))
- ☐ Yes – Pass
☐ No – Fail



Figure 9. Removable Label on Dash.

- ☐ 5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(2)(i))
- ☐ Yes – Pass
☐ No – Fail
- ☐ 5.1.5 Is the message white with black text? (S4.5.1(e)(2)(ii))
- ☐ Yes – Pass
☐ No – Fail

- ☐ 5.1.6 Is the message area at least 30 cm²? (S4.5.1(e)(2)(ii))
Length 12.5 cm , Width 3.5 cm
Actual message area 43.75 cm²
- ☐ Yes – Pass
☐ No - Fail
- ☒ 5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(1))
- ☒ Yes – Pass
☐ No - Fail
- ☒ 5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))
- ☒ Yes – Pass
☐ No - Fail
- ☒ 5.2.2 Does the label conform in content to the label shown in Figure 7? (S4.5.1(e)(1)(iii))
Vehicles without back seats may omit the statement: “The back seat is the safest place for children.” (S4.5.1(e)(2)(iii))
- ☒ Yes – Pass
☐ No - Fail

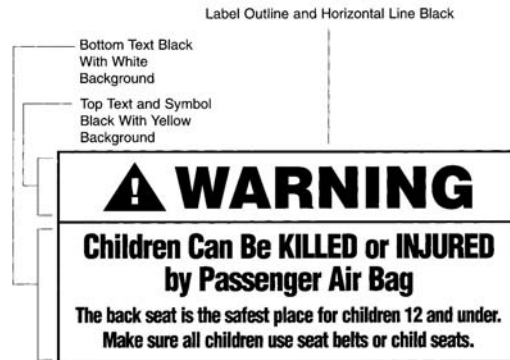


Figure 7. Removable Label on Dash.

- ☒ 5.2.3 Is the heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(e)(1)(i))
- ☒ Yes – Pass
☐ No - Fail
- ☒ 5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))
- ☒ Yes – Pass
☐ No - Fail
- ☒ 5.2.5 Is the message area at least 30 cm²? (S4.5.1(e)(1)(ii))
Length 10 cm, Width 4.8 cm
Actual message area 48 cm²
- ☒ Yes – Pass
☐ No - Fail

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/22/04

DATA SHEET 6

FMVSS 208 READINESS INDICATOR (S4.5.2)

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

NHTSA No.: C40510
Test Date: 3/24/04

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

- ☒ 1. Is the system totally mechanical? If Yes, this data sheet is complete.
☐ Yes
☒ No
- ☒ 2. Describe the location of the readiness indicator: Left lower center of instrument cluster
- ☒ 3. Is the readiness indicator clearly visible to the driver?
☒ Yes – Pass
☐ No - Fail
- ☒ 4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner's manual?
☒ Yes – Pass
☐ No - Fail
- ☒ 5. Does the vehicle have an on-off switch for the passenger air bag?
☐ If Yes, go to 6
☒ If No, this form is complete.
- ☐ 6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
☐ Yes – Pass
☐ No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Dahlke

Date: 3/24/04

DATA SHEET 7

PASSENGER AIR BAG MANUAL CUT-OFF DEVICE (S4.5.4)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/24/04

- | | | |
|-------------------------------------|-----|--|
| <input checked="" type="checkbox"/> | 1. | Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position? |
| | | <input type="checkbox"/> Yes, go to 2 |
| | | <input checked="" type="checkbox"/> No, this sheet is complete |
| <input type="checkbox"/> | 2. | Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4(a)) |
| | | <input type="checkbox"/> Yes, go to 3 |
| | | <input type="checkbox"/> No, go to 4 |
| <input type="checkbox"/> | 3. | Verification of the lack of room for a child restraint in the rear seat behind the driver's seat. (S4.5.4(b)) |
| <input type="checkbox"/> | 3.1 | Position the seat's adjustable lumbar supports to that the lumbar support is in its lowest, retracted or deflated adjustment position (S8.1.3) |
| | | <input type="checkbox"/> N/A, no lumbar adjustment |
| <input type="checkbox"/> | 3.2 | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.02) |
| | | <input type="checkbox"/> N/A, no additional support adjustment |
| <input type="checkbox"/> | 3.3 | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | <input type="checkbox"/> N/A, no independent fore-aft seat cushion adjustment |
| <input type="checkbox"/> | 3.4 | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position (S16.2.10.3.1) |
| | | <input type="checkbox"/> N/A, no independent seat cushion height adjustment |
| <input type="checkbox"/> | 3.5 | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | <input type="checkbox"/> N/A, the seat does not have a fore-aft adjustment |
| <input type="checkbox"/> | 3.6 | If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1) |
| | | <input type="checkbox"/> N/A, no seat height adjustment |
| <input type="checkbox"/> | 3.7 | Draw a horizontal reference line on the side of the seat cushion. |
| <input type="checkbox"/> | 3.8 | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | <input type="checkbox"/> N/A – the seat does not have a fore-aft adjustment. |
| <input type="checkbox"/> | 3.9 | Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position. (S8.1.2) |
| | | <input type="checkbox"/> N/A – the seat does not have fore-aft adjustment. |

		Mid position
		If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:
	3.10	If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.
		N/A – No adjustments
		Angle of reference line as tested:
	3.11	The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
		N/A – No seat back angle adjustment
		Manufacturers design seat back angle:
		Tested seat back angle:
	3.12	Is the driver seat a bucket seat?
		Yes, go to 3.12.1 and skip 3.12.2
		No, go to 3.12.2 and skip 3.12.1
	3.12.1	Bucket Seats:
	3.12.1.1	Locate and mark a vertical Plane B through the longitudinal centerline of the seat driver's seat cushion. (S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
		Record the width of the seat:
		Record the distance from the edge of the seat to Plane B:
	3.12.1.2	Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat.
		Distance (mm):
		Less than 720 mm – Pass
		More then 720 mm – Fail
		Go to 4
	3.12.2	Bench seats (including split bench seats):
	3.12.2.1	Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
	3.12.2.2	Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.
		Distance (mm):
		Less than 720 mm – Pass
		More then 720 mm – Fail
		Go to 4
	4.	Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2)
		Yes – Pass
		No – Fail

<input type="checkbox"/>	5.	Is the on-off device separate from the ignition switch? (S4.5.4.2)
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	6.	Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	7.	Telltale light (S4.5.4.3)
<input type="checkbox"/>	7.1	Is the light yellow? S4.5.4.3(a))
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	7.2	Are the words “PASSENGER AIR BAG OFF” (S4.5.4.3(b))
<input type="checkbox"/>	7.2.1	on the telltale?
	<input type="checkbox"/>	Yes – Pass, go to 7.3
	<input type="checkbox"/>	No – go to 7.2.2
<input type="checkbox"/>	7.2.2	within 25 mm of the telltale?
<input type="checkbox"/>		Measurement from the edge of the telltale light (mm):
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	7.3	Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c)) (Leave the air bag off for 5 minutes.)
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	7.4	Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))
	<input type="checkbox"/>	Yes – Fail
	<input type="checkbox"/>	No – Pass
<input type="checkbox"/>	7.5	Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))
	<input type="checkbox"/>	Yes – Fail
	<input type="checkbox"/>	No – Pass
<input type="checkbox"/>	8.	Owner’s Manual
<input type="checkbox"/>	8.1	Does the owner’s manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	8.2	Does the owner’s manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))
	Infants:	there is no back seat
		the rear seat is too small to accommodate a child restraint
		there is a medical condition that must be monitored constantly
	Children	there is no back seat
	aged	space is not always available in the rear seat
	1 to 12:	there is a medical condition that must be monitored constantly
	Medical	medical risk causes special risk for passenger
	condition:	greater risk for harm than with the air bag on
	<input type="checkbox"/>	Yes – Pass

<input type="checkbox"/>	8.3	<input type="checkbox"/> No – Fail
		Does the owner's manual contain a warning about the safety consequences of using the on-off switch at other times?
		<input type="checkbox"/> Yes – Pass
		<input type="checkbox"/> No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Gahlh

Date: 3/24/04

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

NHTSA No.: C40510
Test Date: 3/25/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Front Passenger
------------------------------	-----------------

<input type="checkbox"/>		N/A – no retractor is at this position
<input type="checkbox"/>		N/A – the retractor is an automatic locking retractor ONLY
<input checked="" type="checkbox"/>	1.	Record test fore-aft seat position: Full Aft (S7.1.1.5(c)(1)) (Any position is acceptable)
<input checked="" type="checkbox"/>	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		<input checked="" type="checkbox"/> Yes – Pass
		<input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		<input checked="" type="checkbox"/> Yes – Pass
		<input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	4.	Buckle the seat belt. (S7.1.1.5(c)(1))
<input checked="" type="checkbox"/>	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
<input checked="" type="checkbox"/>	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
<input checked="" type="checkbox"/>	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		<input checked="" type="checkbox"/> Yes, go to 7.1
		<input type="checkbox"/> No, go to 8
<input checked="" type="checkbox"/>	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		<input checked="" type="checkbox"/> Yes – Pass
		<input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ Measured distance between A and B (inches): 64.25
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
- ☒ Measured force application angle (Spec. 5-15 degrees): 12
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
- ☒ Measured distance between A and B (inches): 38.5
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- ☒ Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 15
- ☒ Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 39.5
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
- ☒ $13 - 12 = .5$
- ☒ Yes – Pass
- ☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
- ☒ $9 - 13 = 24.75$
- ☒ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Gahlh

Date: 3/25/04

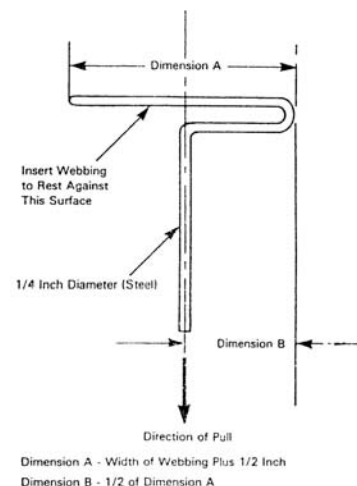


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

NHTSA No.: C40510
Test Date: 3/25/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Left Rear Passenger
------------------------------	---------------------

<input type="checkbox"/>		N/A – no retractor is at this position	
<input type="checkbox"/>		N/A – the retractor is an automatic locking retractor ONLY	
<input checked="" type="checkbox"/>	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)	
<input checked="" type="checkbox"/>	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	4.	Buckle the seat belt. (S7.1.1.5(c)(1))	
<input checked="" type="checkbox"/>	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))	
<input checked="" type="checkbox"/>	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))	
<input checked="" type="checkbox"/>	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?	
		<input checked="" type="checkbox"/> Yes, go to 7.1	
		<input type="checkbox"/> No, go to 8	
<input checked="" type="checkbox"/>	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))	

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ Measured distance between A and B (inches): 61.75
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
- ☒ Measured force application angle (Spec. 5-15 degrees): 13.5
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
- ☒ Measured distance between A and B (inches): 30.5
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- ☒ Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 15
- ☒ Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 31.75
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
- ☒ $13 - 12 = 1.25$
- ☒ Yes – Pass
- ☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
- ☒ $9 - 13 = 30$
- ☒ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/25/04

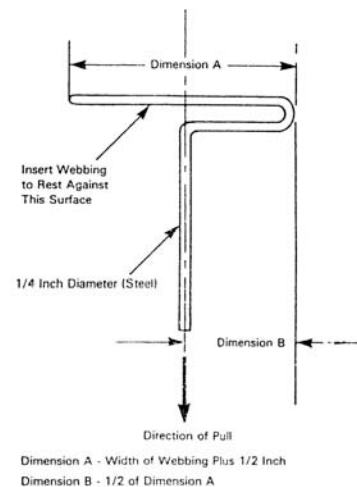


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

NHTSA No.: C40510
Test Date: 3/25/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Center Rear Passenger
------------------------------	-----------------------

<input type="checkbox"/>		N/A – no retractor is at this position	
<input type="checkbox"/>		N/A – the retractor is an automatic locking retractor ONLY	
<input checked="" type="checkbox"/>	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)	
<input checked="" type="checkbox"/>	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	4.	Buckle the seat belt. (S7.1.1.5(c)(1))	
<input checked="" type="checkbox"/>	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))	
<input checked="" type="checkbox"/>	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))	
<input checked="" type="checkbox"/>	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?	
		<input checked="" type="checkbox"/> Yes, go to 7.1	
		<input type="checkbox"/> No, go to 8	
<input checked="" type="checkbox"/>	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))	

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ Measured distance between A and B (inches): 58.5
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
- ☒ Measured force application angle (Spec. 5-15 degrees): 14
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
- ☒ Measured distance between A and B (inches): 31
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- ☒ Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 15
- ☒ Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 32.75
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
- ☒ $13 - 12 = 1.75$
- ☒ Yes – Pass
- ☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
- ☒ $9 - 13 = 25.75$
- ☒ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Gahl

Date: 3/25/04

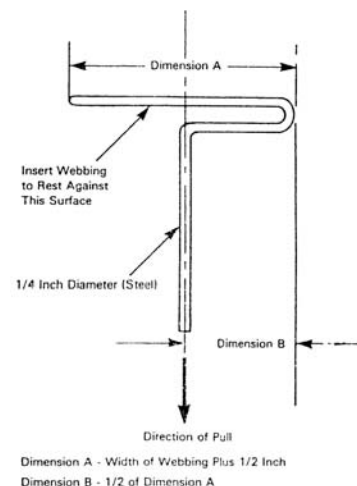


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

NHTSA No.: C40510
Test Date: 3/25/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Right Rear Passenger
------------------------------	-----------------------------

<input type="checkbox"/>		N/A – no retractor is at this position
<input type="checkbox"/>		N/A – the retractor is an automatic locking retractor ONLY
<input checked="" type="checkbox"/>	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)
<input checked="" type="checkbox"/>	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		<input checked="" type="checkbox"/> Yes – Pass
		<input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		<input checked="" type="checkbox"/> Yes – Pass
		<input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	4.	Buckle the seat belt. (S7.1.1.5(c)(1))
<input checked="" type="checkbox"/>	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
<input checked="" type="checkbox"/>	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
<input checked="" type="checkbox"/>	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		<input checked="" type="checkbox"/> Yes, go to 7.1
		<input type="checkbox"/> No, go to 8
<input checked="" type="checkbox"/>	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		<input checked="" type="checkbox"/> Yes – Pass
		<input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ Measured distance between A and B (inches): 60.75
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
- ☒ Measured force application angle (Spec. 5-15 degrees): 14
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
- ☒ Measured distance between A and B (inches): 28.5
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- ☒ Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 15
- ☒ Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 29.75
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
- ☒ $13 - 12 = 1.25$
- ☒ Yes – Pass
- ☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
- ☒ $9 - 13 = 31$
- ☒ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Gahlh

Date: 3/25/04

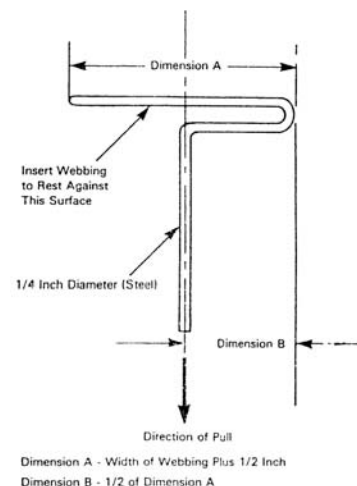


Figure 5. - Webbing Tension Pull Device

DATA SHEET 9

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

Test Vehicle: 2004 Hyundai Elantra 4 Door

NHTSA No.: C40510

Test Program: FMVSS 208 Compliance

Test Date: 3/23/04

Test Technician: Wayne Dahlke

- | | | |
|----------|-----|---|
| X | 1. | The occupant is in the driver's seat. |
| X | 2. | The seat belt is in the stowed position. |
| X | 3. | The key is in the "on" or "start" position. |
| X | 4. | The time duration of the audible signal beginning with key "on" or "start" is |
| X | | Seconds: 6.0 |
| X | 5. | The occupant is in the driver's seat. |
| X | 6. | The seat belt is in the stowed position. |
| X | 7. | The key is in the "on" or "start" position. |
| X | 8. | The time duration of the warning light beginning with key "on" or "start" is |
| X | | Seconds: Stays On |
| X | 9. | The occupant is in the driver's seat. |
| X | 10. | The seat belt is in the latched position and with at least 4 inches of belt webbing extended. |
| X | 11. | The key is in the "on" or "start" position. |
| X | 12. | The time duration of the audible signal beginning with key "on" or "start" is |
| X | | Seconds: 0.0 |
| X | 13. | The occupant is in the driver's seat. |
| X | 14. | The seat belt is in the latched position and with at least 4 inches of belt webbing extended. |
| X | 15. | The key is in the "on" or "start" position. |
| X | 16. | The time duration of the warning light beginning with key "on" or "start" is |
| X | | Seconds: 0.0 |
| X | 17. | Complete the following table with the data from 4, 8, 12, and 16 to determine which option is used. |

		Warning light	Warning light specification	Audible signal	Audible signal specification*
S7.3 (a)(1)	Belt latched & key on or start	Item 16: 0.0		Item 12: 0.0	0 seconds**
	Belt stowed & key on or start	Item 8: Stays On	60 seconds minimum	Item 4: 6.0	4 to 8 seconds
S7.3 (a)(2)	Belt latched & key on or start	Item 16: 0.0	4 to 8 seconds	Item 12: 0.0	0 seconds**
	Belt stowed & key on or start	Item 8: Stays On	4 to 8 seconds	Item 4: 6.0	4 to 8 seconds

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.

** 0 seconds means the light or audible signal are NOT permitted to operate under these conditions.
See 7/12/00 interpretation to Patrick Raher of Hogan and Hartson

- ☒ 18. The seat belt warning system meets the requirements of (manufacturers may comply with either section)
- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | S7.3 (a)(1) |
| <input type="checkbox"/> | S7.3 (a)(2) |
| <input type="checkbox"/> | FAIL – does not meet the requirements of either option |
- ☒ 19. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))
- | | |
|-------------------------------------|---|
| <input type="checkbox"/> | Fasten seat belts |
| <input type="checkbox"/> | Fasten belts |
| <input checked="" type="checkbox"/> | Symbol 101 |
| <input type="checkbox"/> | FAIL – does not used any of the above working or symbol |

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger
------------------------------	---------------------

- | | | |
|----------|-----|--|
| X | 1. | Does the vehicle incorporate a webbing tension-relieving device? |
| | | <input type="checkbox"/> Yes, this form is complete |
| | | X No, continue with this check sheet |
| X | 2. | Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) |
| | | X N/A, no lumbar adjustment |
| X | 3. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no additional support adjustment |
| X | 4. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no independent fore-aft seat cushion adjustment |
| X | 5. | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | X N/A, no independent seat cushion height adjustment |
| X | 6. | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | X N/A, the seat does not have a fore-aft adjustment |
| X | 7. | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | X N/A, no seat height adjustment |
| X | 8. | Draw a horizontal reference line on the side of the seat cushion. |
| X | 9. | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | X N/A, the seat does not have a fore-aft adjustment |
| X | 10. | Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2) |

	<input type="checkbox"/>	Mid position
		If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Not adjustable
<input checked="" type="checkbox"/>	11.	If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
	<input checked="" type="checkbox"/>	N/A, no adjustments
		Reference line angle as tested: N/A
<input checked="" type="checkbox"/>	12	The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
	<input checked="" type="checkbox"/>	N/A, no seat back angle adjustment
<input type="checkbox"/>		Manufacturer's design seat back angle:
<input type="checkbox"/>		Tested seat back angle:
<input checked="" type="checkbox"/>	13.	Position the test dummies according to dummy position placement instructions in Appendix F.
<input checked="" type="checkbox"/>	14.	Fasten the seat belt latch.
<input checked="" type="checkbox"/>	15.	Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.
<input checked="" type="checkbox"/>	16.	Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
<input checked="" type="checkbox"/>		Contact Force (lb): 0.29
	<input checked="" type="checkbox"/>	0.0 to 0.7 pounds – Pass
	<input type="checkbox"/>	Greater than 0.7 pounds - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 10 **BELT CONTACT FORCE (S7.4.3)**

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger
------------------------------	-----------------------

- | | | |
|----------|-----|--|
| X | 1. | Does the vehicle incorporate a webbing tension-relieving device? |
| | | <input type="checkbox"/> Yes, this form is complete |
| | | X No, continue with this check sheet |
| X | 2. | Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) |
| | | X N/A, no lumbar adjustment |
| X | 3. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no additional support adjustment |
| X | 4. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no independent fore-aft seat cushion adjustment |
| X | 5. | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | X N/A, no independent seat cushion height adjustment |
| X | 6. | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | X N/A, the seat does not have a fore-aft adjustment |
| X | 7. | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | X N/A, no seat height adjustment |
| X | 8. | Draw a horizontal reference line on the side of the seat cushion. |
| X | 9. | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | <input type="checkbox"/> N/A, the seat does not have a fore-aft adjustment |
| X | 10. | Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2) |

	<input type="checkbox"/>	Mid position
		If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Not adjustable
<input checked="" type="checkbox"/>	11.	If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
	<input checked="" type="checkbox"/>	N/A, no adjustments
		Reference line angle as tested: N/A
<input checked="" type="checkbox"/>	12	The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
	<input checked="" type="checkbox"/>	N/A, no seat back angle adjustment
<input checked="" type="checkbox"/>		Manufacturer's design seat back angle:
<input checked="" type="checkbox"/>		Tested seat back angle:
<input checked="" type="checkbox"/>	13.	Position the test dummies according to dummy position placement instructions in Appendix F.
<input checked="" type="checkbox"/>	14.	Fasten the seat belt latch.
<input checked="" type="checkbox"/>	15.	Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.
<input checked="" type="checkbox"/>	16.	Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
<input checked="" type="checkbox"/>		Contact Force (lb): 0.23
	<input checked="" type="checkbox"/>	0.0 to 0.7 pounds – Pass
	<input type="checkbox"/>	Greater than 0.7 pounds - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger
------------------------------	----------------------

- | | | |
|----------|-----|--|
| X | 1. | Does the vehicle incorporate a webbing tension-relieving device? |
| | | <input type="checkbox"/> Yes, this form is complete |
| | | X No, continue with this check sheet |
| X | 2. | Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) |
| | | X N/A, no lumbar adjustment |
| X | 3. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no additional support adjustment |
| X | 4. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no independent fore-aft seat cushion adjustment |
| X | 5. | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | X N/A, no independent seat cushion height adjustment |
| X | 6. | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | X N/A, the seat does not have a fore-aft adjustment |
| X | 7. | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | X N/A, no seat height adjustment |
| X | 8. | Draw a horizontal reference line on the side of the seat cushion. |
| X | 9. | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | <input type="checkbox"/> N/A, the seat does not have a fore-aft adjustment |
| X | 10. | Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2) |

	<input type="checkbox"/>	Mid position
		If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Not adjustable
<input checked="" type="checkbox"/>	11.	If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
	<input checked="" type="checkbox"/>	N/A, no adjustments
		Reference line angle as tested: N/A
<input checked="" type="checkbox"/>	12	The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
	<input checked="" type="checkbox"/>	N/A, no seat back angle adjustment
<input checked="" type="checkbox"/>		Manufacturer's design seat back angle:
<input checked="" type="checkbox"/>		Tested seat back angle:
<input checked="" type="checkbox"/>	13.	Position the test dummies according to dummy position placement instructions in Appendix F.
<input checked="" type="checkbox"/>	14.	Fasten the seat belt latch.
<input checked="" type="checkbox"/>	15.	Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.
<input checked="" type="checkbox"/>	16.	Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
<input checked="" type="checkbox"/>		Contact Force (lb): 0.31
	<input checked="" type="checkbox"/>	0.0 to 0.7 pounds – Pass
	<input type="checkbox"/>	Greater than 0.7 pounds - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 11

LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car
------------------------------	---

- | | | |
|---|-----|--|
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 1. | Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (8.1.3) |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, no lumbar adjustment |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 2. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, no additional support adjustment |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 3. | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, no independent fore-aft seat cushion adjustment |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 4. | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, no independent seat cushion height adjustment |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 5. | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, the seat does not have a fore-aft adjustment |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 6. | If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1) |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, no seat height adjustment |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 7. | Draw a horizontal reference line on the side of the seat cushion |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 8. | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, the seat does not have a fore-aft adjustment. |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 9. | Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the forward most fore-aft position for this test. (S10.7) |
| <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> | 10. | If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. |
| | | <input style="width: 30px; height: 20px; background-color: yellow;" type="checkbox"/> N/A, no adjustments |

<input type="checkbox"/>		Reference line angle as tested: Zero
<input type="checkbox"/>	11.	The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
<input type="checkbox"/>		N/A, no seat back angle adjustment
<input type="checkbox"/>		Manufacturer's design seat back angle:
<input type="checkbox"/>		Tested seat back angle:
<input type="checkbox"/>	12.	Position the test dummy using the procedures in Appendix A. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix A positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) Include the positioning check sheet with this form.
<input type="checkbox"/>	13.	Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50 th percentile adult male occupant.
<input type="checkbox"/>	14	Attach the inboard reach string to the base of the head following the instructions on Figure 3.
<input type="checkbox"/>	15.	Attach the outboard reach string to the torso sheath following the instructions on Figure 3.
<input type="checkbox"/>	16.	Place the latch plate in the stowed position.
<input type="checkbox"/>	17.	Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
<input type="checkbox"/>		Yes – Pass
<input type="checkbox"/>		No
<input type="checkbox"/>	18.	Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
<input type="checkbox"/>		Yes – Pass
<input type="checkbox"/>		No
<input type="checkbox"/>	19.	Is the latch plate within the inboard (item 17) or outboard (item 18) reach envelope?
<input type="checkbox"/>		Yes – Pass
<input type="checkbox"/>		No – Fail
<input type="checkbox"/>	20.	Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?
<input type="checkbox"/>		Yes – Pass
<input type="checkbox"/>		No – Fail

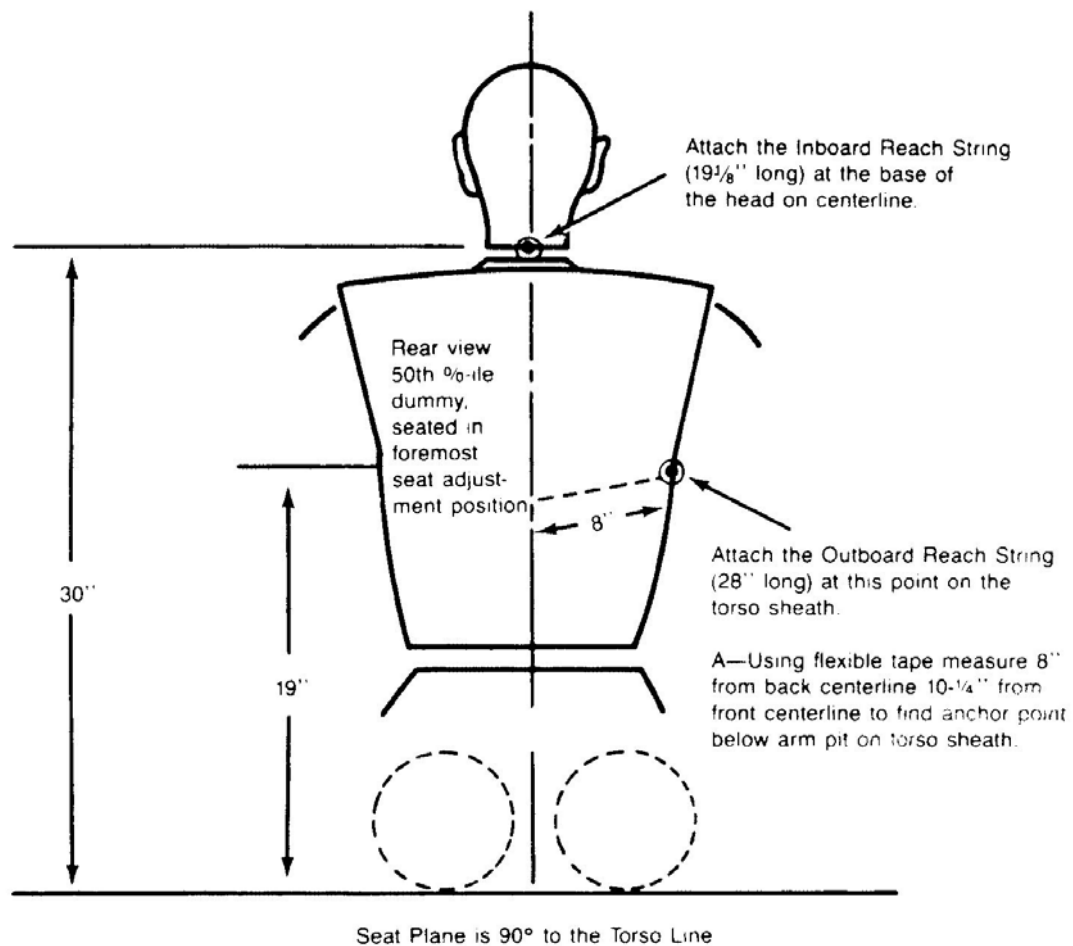


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

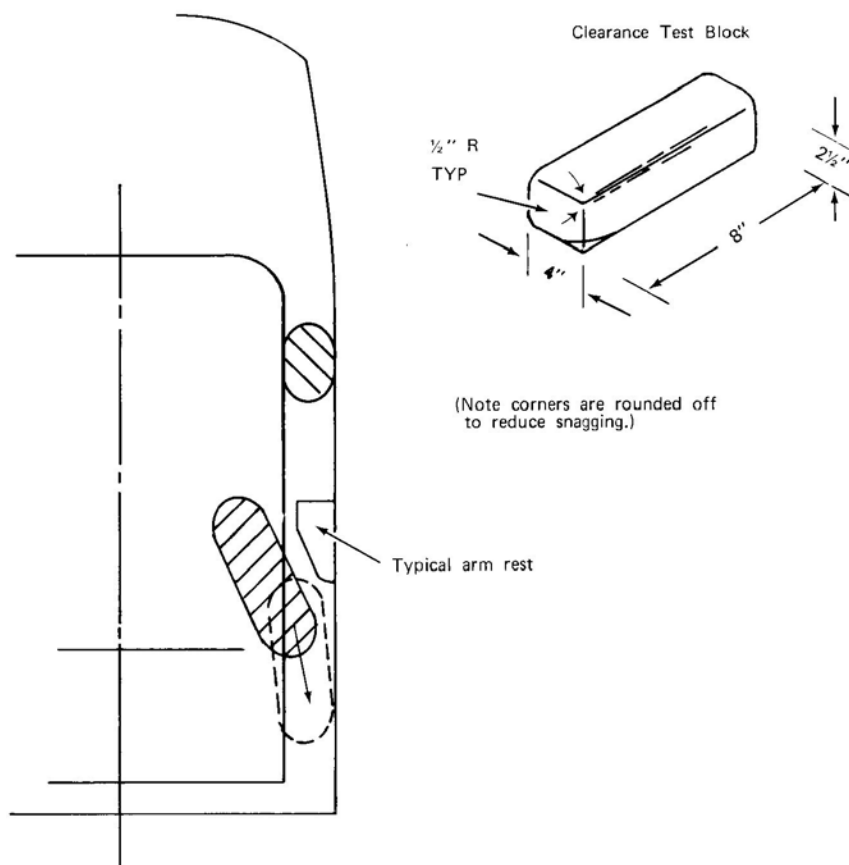


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 12

SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car
GVWR:	

- ☒ 1. Is the vehicle a passenger car or walk-in van-type vehicle?
 - ☒ Yes, this form is complete
 - ☐ No
- ☐ 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
 - ☐ N/A, no lumbar adjustment
- ☐ 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
 - ☐ N/A, no additional support adjustment
- ☐ 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
 - ☐ N/A, no independent fore-aft seat cushion adjustment
- ☐ 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
 - ☐ N/A, no independent seat cushion height adjustment
- ☐ 6. Put the seat in its full rearward position.
 - ☐ N/A, the seat does not have a fore-aft adjustment
- ☐ 7. If the seat height is adjustable, put it in the full down position. (S8.1.2)
 - ☐ N/A, no seat adjustment
- ☐ 8. Draw a horizontal line on the side of the seat cushion.
- ☐ 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
 - ☐ N/A, the seat does not have a fore-aft adjustment.
- ☐ 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the middle fore-aft position. (S8.1.2)
 - ☐ If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

- ☐ 11. If seat adjustments, other than fore-aft, are present and the reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2)
- ☐ N/A – no seat adjustment
- ☐ Reference angle as tested:
- ☐ 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S8.1.3)
- ☐ N/A – no seat back angle adjustment
- ☐ Manufacturer's design seat back angle:
- ☐ Tested seat back angle:
- ☐ 13. If adjustable, set the head restraint at the full up and full forward position. (S8.1.3) Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible.
- ☐ N/A – no head restraint adjustment
- ☐ 14. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
- ☐ N/A – no adjustable upper seat belt anchorage
- ☐ Manufacturer's specified anchorage position:
- ☐ Tested anchorage position:
- ☐ 15. Is the driver seat a bucket seat?
- ☐ Yes, go to 15.1 and skip 15.2.
- ☐ No, go to 15.2 and skip 15.1
- ☐ 15.1 Bucket seats - Locate and mark a vertical Plane B through the longitudinal centerline of the seat. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
- ☐ Record the width of the seat:
- ☐ Record the distance from the edge of the seat to Plane B.
- ☐ 15.2 Bench seats (including split bench seats):
- ☐ Driver seat: Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
- ☐ Passenger seat: Locate and mark a vertical longitudinal Plane B on the seat that is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
- ☐ Distance from the vehicle centerline to the center of the steering wheel:
- ☐ Distance from the vehicle centerline to Plane B:
- ☐ 16. Stow outboard armrests that are capable of being stowed. (S7.4.5)
- ☐ 17. Remove the arms of a Subpart E dummy and place it in the seat such that the midsagittal plane is coincident with Plane B and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)
- ☐ 18. Rest the thighs on the seat cushion

- ☐ 19. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
- ☐ Horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
 - ☐ Vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
 - ☐ Pelvic angle (20° to 25°)
 - ☐ Vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
 - ☐ Pelvic angle (20° to 25°) (S10.4.2.2)
- ☐ 20. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches. Measured distance (10.6 inches) (S10.5):
- ☐ 21. To the extent practicable keep the thighs and the legs in a vertical plane (S10.5) and rest the thighs on the seat cushion while resting the feet on the floorpan or toe board.
- ☐ 22. Fasten the seat belt around the dummy.
- ☐ 23. Remove all slack from the lap belt portion. (S10.9)
- ☐ 24. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)
- ☐ 25. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
- ☐ Pound load applied:
- ☐ 26. Is the belt system equipped with a tension relieving device?
- ☐ __ Yes, continue
 - ☐ __ No, go to 27
- ☐ 26.1 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 25.
- ☐ 27. Check the statement that applies to this test vehicle:
- ☐ 27.1 Check the statement that applies to this test vehicle:
The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.
- ☐ Pass
- ☐ 27.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.
- ☐ Pass
- ☐ 27.3 Neither A or B apply
- ☐ Fail
- ☐ 28. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
- ☐ Yes – Pass
 - ☐ No – Fail

☐

29. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

☐

N/A

☐

Yes – Pass

☐

No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature:

Wayne Zuhl

Date:

3/23/04

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger
------------------------------	---------------------

- | | | |
|--|----|--|
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 1. | Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 2 |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 2. | Is the seat removable? (S7.4.6.1(b)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 3 |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 3. | Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 4 |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 4. | Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, go to 5 |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, this form is complete |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 5. | Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail |
| | | Identify the part(s) on top or above the seat. |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Seat belt latch plate |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Buckle |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Seat belt webbing |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 6. | Are the remaining two seat belt parts accessible under normal conditions? |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 7. | The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail |

- ☐ 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger
------------------------------	-----------------------

- | | | |
|----------|----|--|
| X | 1. | Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b)) |
| | | <input type="checkbox"/> Yes, this form is complete |
| | | <input checked="" type="checkbox"/> No, go to 2 |
| X | 2. | Is the seat removable? (S7.4.6.1(b)) |
| | | <input type="checkbox"/> Yes, this form is complete |
| | | <input checked="" type="checkbox"/> No, go to 3 |
| X | 3. | Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b)) |
| | | <input type="checkbox"/> Yes, this form is complete |
| | | <input checked="" type="checkbox"/> No, go to 4 |
| X | 4. | Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a)) |
| | | <input checked="" type="checkbox"/> Yes, go to 5 |
| | | <input type="checkbox"/> No, this form is complete |
| X | 5. | Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a)) |
| | | <input checked="" type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| | | Identify the part(s) on top or above the seat. |
| | | <input type="checkbox"/> Seat belt latch plate |
| | | <input checked="" type="checkbox"/> Buckle |
| | | <input type="checkbox"/> Seat belt webbing |
| X | 6. | Are the remaining two seat belt parts accessible under normal conditions? |
| | | <input checked="" type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |
| X | 7. | The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2) |
| | | <input checked="" type="checkbox"/> Yes – Pass |
| | | <input type="checkbox"/> No – Fail |

- ☒ 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
- ☒ Yes – Pass
☐ No – Fail
- ☒ 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
- ☒ Yes – Pass
☐ No – Fail
- ☒ 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
- ☐ Yes – Pass
☐ No – Fail
☒ N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 3/23/04

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger
------------------------------	----------------------

- | | | |
|--|----|--|
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 1. | Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 2 |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 2. | Is the seat removable? (S7.4.6.1(b)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 3 |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 3. | Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 4 |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 4. | Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, go to 5 |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, this form is complete |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 5. | Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a)) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail |
| | | Identify the part(s) on top or above the seat. |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Seat belt latch plate |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Buckle |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Seat belt webbing |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 6. | Are the remaining two seat belt parts accessible under normal conditions? |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 7. | The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2) |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass |
| | | <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail |

- ☐ 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Zuhl

Date: 3/23/04

DATA SHEET 14

MARKING OF REFERENCE POINTS FOR VARIOUS TEST POSITIONS AND POINTS

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C40510
 Test Date: 8/27/04

1. Driver Designated Seating Position:

- | | | |
|-------------------------------------|------|--|
| <input checked="" type="checkbox"/> | 1.1 | Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1) |
| | | <input type="checkbox"/> N/A – No lumbar adjustment |
| <input checked="" type="checkbox"/> | 1.2 | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position (S16.2.10.2) |
| | | <input checked="" type="checkbox"/> N/A – No additional support adjustment |
| <input checked="" type="checkbox"/> | 1.3 | Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. |
| <input checked="" type="checkbox"/> | 1.4 | Draw a line (seat cushion reference line) through the seat cushion reference point. |
| <input checked="" type="checkbox"/> | 1.5 | Using only the controls that primarily move the seat in the fore-aft direction, move the seat cushion reference point to the rearmost position. |
| <input checked="" type="checkbox"/> | 1.6 | If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position (S16.2.10.3) |
| | | <input checked="" type="checkbox"/> N/A – No independent fore-aft seat cushion adjustment |
| <input checked="" type="checkbox"/> | 1.7 | Using any part of any control, other than the parts just used for fore-aft positioning, determine the range of angles of the seat cushion reference line and set the seat cushion reference line at the mid-angle. |
| <input checked="" type="checkbox"/> | | Maximum Angle: 4.8 Degrees Nose Down |
| <input checked="" type="checkbox"/> | | Minimum Angle: 7.7 Degrees Nose Up |
| <input checked="" type="checkbox"/> | | Mid-angle: 1.4 Degrees Nose Up |
| <input checked="" type="checkbox"/> | 1.8 | If the seat and/or seat cushion height is adjustable, use any part of any control other than those which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.7. |
| | | <input type="checkbox"/> N/A – No seat height adjustment |
| <input checked="" type="checkbox"/> | 1.9 | Using only the controls that primarily move the seat in the fore-aft direction, verify the seat is in the rearmost position. |
| <input checked="" type="checkbox"/> | 1.10 | Using only the controls that primarily move the seat in the fore-aft direction, mark for future reference the fore-aft seat positions. Mark each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. |
| <input checked="" type="checkbox"/> | 1.11 | Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position. |
| <input checked="" type="checkbox"/> | 1.12 | Using any controls, other than the controls that primarily move the seat and/or seat cushion in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7. |

- ☒ 1.13 Using only the controls that primarily move the seat and/or seat cushion in the fore-aft direction, place the seat in the mid-fore-aft position.
- ☒ 1.14 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7.
- ☒ 1.15 Using only the controls that change the seat in the fore-aft direction, place the seat in the foremost position.
- ☒ 1.16 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7.
- ☒ 1.17 Visually mark for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
- ☐ N/A – No seat back angle adjustment
- ☒ Manufacturer's design seat back angle: 22.5° (9th notch)
- ☒ 1.18 Is the seat a bucket seat?
- ☒ Yes, go to 1.18.1 and skip 1.18.2
- ☐ No, go to 1.18.2 and skip 1.18.1
- 1.18.1 Bucket seats:
- ☒ Locate and mark for future reference the longitudinal centerline of the seat cushion. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle. (S16.3.1.10)
- ☒ Record the width of the seat cushion: 525 mm
- ☒ One half the width of the seat cushion is: 262 mm
- ☒ Record the distance from the edge of the seat cushion to the seat mark: 262 mm
- 1.18.2 Bench seats:
- ☐ Locate and mark for future reference the longitudinal line on the seat cushion that marks the longitudinal vertical plane through the centerline of the steering wheel.
2. Passenger Designated Seating Position
- ☒ 2.1 Is the seat adjustable independent of the driver seating position?
- ☒ Yes, go to 2.2
- ☐ No, go to 2.18
- ☒ 2.2 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions (S16.2.10.1, S20.1.9.1, S22.1.7.1)
- ☒ N/A – No lumbar adjustment
- ☒ 2.3 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S22.1.7.2)
- ☒ N/A – No additional support adjustment
- ☒ 2.4 Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.
- ☒ 2.5 Draw a line (seat cushion reference line) through the seat cushion reference point.
- ☒ 2.6 Using only the controls that primarily move the seat in the fore-aft direction, move the seat cushion reference point to the rearmost position.

<input checked="" type="checkbox"/>	2.7	If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position (S16.2.10.3, S20.1.9.3, S22.1.7.3)
<input checked="" type="checkbox"/>		N/A – No independent fore-aft seat cushion adjustment.
<input checked="" type="checkbox"/>	2.8	Using any part of the control, other than the parts just used for fore-aft positioning, determine the range of angles of the seat cushion reference line and set the seat cushion reference line at the mid-angle.
<input checked="" type="checkbox"/>		Maximum Angle: Zero
<input checked="" type="checkbox"/>		Minimum Angle: Zero
<input checked="" type="checkbox"/>		Mid-angle: Zero
<input checked="" type="checkbox"/>	2.9	If the seat and/or seat cushion height is adjustable, use any part of any control other than those which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-range angle.
<input checked="" type="checkbox"/>		N/A – No seat height adjustment
<input checked="" type="checkbox"/>	2.10	Using only the controls that primarily move the seat and/or seat cushion in the fore-aft direction, verify the seat is in the rearmost position.
<input checked="" type="checkbox"/>	2.11	Using only the controls that primarily move the seat in the fore-aft direction, mark for future reference the fore-aft seat positions. Mark each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.
<input checked="" type="checkbox"/>	2.12	Using only the controls that primarily move the seat in the fore-aft direction, place the seat in the rearmost position.
<input checked="" type="checkbox"/>	2.13	Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.
<input checked="" type="checkbox"/>		N/A – No seat height adjustment Go to 2.18
<input type="checkbox"/>	2.14	Using only the controls that primarily move the seat in the fore-aft direction, place the seat in the mid-fore-aft position.
<input type="checkbox"/>	2.15	Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.
<input type="checkbox"/>	2.16	Using only the controls that change the seat in the fore-aft direction, place the seat in the foremost position.
<input type="checkbox"/>	2.17	Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.
<input checked="" type="checkbox"/>	2.18	Visually mark for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a 50 th percentile adult male in the manner specified by the manufacturer.
<input type="checkbox"/>		N/A – No seat back angle adjustment
<input type="checkbox"/>		N/A – The seat back angle adjustment is controlled by the setting of the driver seat back angle.

<input checked="" type="checkbox"/>		Manufacturer's design seat back angle: 22.5° (9 th notch)
<input checked="" type="checkbox"/>		Actual seat back angle: 22.5° (9 th notch)
<input checked="" type="checkbox"/>	2.19	Is the seat a bucket seat?
<input checked="" type="checkbox"/>		Yes, go to 2.19.1 and skip 2.19.2
<input type="checkbox"/>		No, go to 2.19.2 and skip 2.19.1
		2.19.1 Bucket seats:
<input checked="" type="checkbox"/>		Locate and mark for future reference the longitudinal centerline of the seat cushion. (S20.2.1.3, S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle. (S20.1.10)
<input checked="" type="checkbox"/>		Record the width of the seat cushion: 530 mm
<input checked="" type="checkbox"/>		One half the width of the seat cushion is: 265 mm
<input checked="" type="checkbox"/>		Record the distance from the edge of the seat cushion to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) 265 mm
		2.19.2 Bench seats:
<input type="checkbox"/>		Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3)
<input type="checkbox"/>		Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel:
<input type="checkbox"/>		Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.)
<input checked="" type="checkbox"/>	3.	Head Restraints
<input type="checkbox"/>		N/A, vehicle contains automatic head restraints
<input type="checkbox"/>		N/A, there is no head restraint adjustment
<input checked="" type="checkbox"/>	3.1	Left outboard
<input checked="" type="checkbox"/>	3.1.1	Adjust the head restraint to its lowest position. (S16.3.4.2)
<input checked="" type="checkbox"/>	3.1.2	Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. Mark the foremost position.
<input checked="" type="checkbox"/>	3.1.3	Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and mark a horizontal plane through the midpoint of this distance.
<input checked="" type="checkbox"/>		Vertical height of head restraint (mm): 160 mm
<input checked="" type="checkbox"/>		Mid-point height (mm): 80 mm
<input checked="" type="checkbox"/>	3.2	Right outboard
<input checked="" type="checkbox"/>	3.2.1	Adjust the head restraint to its lowest position. (S16.3.4.2)
<input checked="" type="checkbox"/>	3.2.2	Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. Mark the foremost position.
<input checked="" type="checkbox"/>	3.2.3	Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and mark a horizontal plane through the midpoint of this distance.
<input checked="" type="checkbox"/>		Vertical height of head restraint (mm): 160 mm
<input checked="" type="checkbox"/>		Mid-point height (mm): 80 mm
<input checked="" type="checkbox"/>	4.	Steering Wheel

- ☒ 4.1 Is the steering wheel adjustable up and down and/or in and out?
- ☒ Yes, go to 4.2
- ☐ No, this form is complete
- ☒ 4.2 Find and **mark** for future reference each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.
- ☐ N/A, steering wheel is not adjustable up and down
- ☒ 4.3 Find and **mark** for future references each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.
- ☒ N/A, steering wheel is not adjustable in and out
- ☒ 5. Driver Low Risk Deployment
- ☐ N/A, no low risk deployment tests scheduled
- ☒ 5.1 Position the steering wheel so the front wheels are in the straight-ahead position. (S26.2.1)
- ☒ 5.2 Position any adjustable parts of the steering controls to the mid-position as determined in item 3 above. If a mid-position adjustment is not achievable, position the controls to the next lowest detent position. (S26.2.1)
- ☒ 5.3 Locate the vertical plane parallel to the vehicle longitudinal centerline through the geometric center of the opening through which the driver air bag deploys into the occupant compartment. This is referred to as "Plane E". (Check determination method below.) (S26.2.6)
- ☒ Plane E determined using manufacturer's information supplied by the COTR . (Found in Appendix D on page D-39)
- ☐ Plane E determined by test lab personnel and approved by the COTR. (Include supporting documentation in the test report.)
- | | Ey (mm) |
|---|---------|
| "Plane E" Measurement:: | |
| Measured: | |
| Specified: | |
| Verify Measured Equals Specified +/- 6mm: | |
- ☒ 5.4 Locate the horizontal plane through the highest point of the air bag module cover. This is referred to as "Plane F." (Check determination method below.) (S26.2.6)
- ☒ Plane F determined using manufacturer's information supplied by the COTR . (Found in Appendix D on page D-39)
- ☐ Plane F determined by test lab personnel and approved by the COTR. (Include supporting documentation in the test report.)
- | | Fz (mm) |
|---|---------|
| "Plane F" Measurement:: | |
| Measured: | |
| Specified: | |
| Verify Measured Equals Specified +/- 6mm: | |
- ☒ 6. Passenger Low Risk Deployment – Planes C and D
- ☒ N/A, no low risk deployment tests scheduled
- ☐ 6.1 Locate the horizontal plane through the geometric center of the opening through which the right front air bag deploys into the occupant compartment. This is referred to as "Plane C." (Check location method below.) (S22.4.1.3)

- ☐ Plane C located using manufacturer's information supplied by the COTR.
(Include manufacturer's information in the test report.) OR
- ☐ Plane C located by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

	Cz (mm)
"Plane C" Measurement::	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

- ☐ 6.2 Locate the vertical plane parallel to the vehicle longitudinal centerline through the geometric center of the opening through which the right front air bag deploys into the occupant compartment. This is referred to as "Plane D." (Check determination method below.) (S22.4.1.2)

- ☐ Plane D determined using manufacturer's information supplied by the COTR.
(Include manufacturer's information in the test report.) OR
- ☐ Plane D determined by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

	Dy (mm)
"Plane D" Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

- ☐ 6.3 **Mark** the intersection of Planes C and D on the instrument panel.

- ☒ 7. 5th Female Dummy
Mark a point on the chin of the dummy 40 mm below the center of the mouth. (Chin Point) (S26.2.6)

- ☐ 8. 6-Year-Old Dummy
Locate and **mark** a point on the front of the dummy's chest jacket on the midsagittal plane which is 139 mm (5.5 in) \pm 3 mm (\pm 0.1 in) along the surface of the skin down from the top of the skin at the neck line. Designate this point as "Point 1." (S24.4.1.1)

- ☐ "Point 1" measurement (mm):
- ☐ 9. 3-Year-Old Dummy
Locate and **mark** a point on the front of the dummy's chest jacket on the midsagittal plane which is 114 mm (4.5 in) \pm 3 mm (\pm 0.1 in) along the surface of the skin down from the top of the skin at the neck line. Designate this point as "Point 1." (S22.4.1.1)

- ☐ "Point 1" measurement (mm +/- 3 mm):

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 8/27/04

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R) Section B Rear Facing CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Handle With Care 191
DATE OF MANUFACTURE:	5-26-2000

Base: __On __Off X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 22.5°
 Tested seat back angle: 22.5°
 Manufacturer's specified anchorage position: 2nd Down
 Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward	130	Suppressed	N/A
	Middle	127	Suppressed	N/A
	Rearward	133	Suppressed	N/A
Unbelted Rear Facing	Forward	N/A	Suppressed	N/A
	Middle	N/A	Suppressed	N/A
	Rearward	N/A	Suppressed	N/A
Unbelted Forward Facing	Forward	N/A	Suppressed	N/A
	Middle	N/A	Suppressed	N/A
	Rearward	N/A	Suppressed	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	First Choice 204
DATE OF MANUFACTURE:	6-20-2000

Base: __On __Off X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 22.5°
 Tested seat back angle: 22.5°
 Manufacturer's specified anchorage position: 2nd Down
 Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 6*	130	N/A	Suppressed
	Middle	133	N/A	Suppressed
	Rearward	133	N/A	Suppressed
Unbelted Rear Facing	Forward 7 *	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: X On Off N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 7 *	130	N/A	Suppressed
	Middle	130	N/A	Suppressed
	Rearward	127	N/A	Suppressed
Unbelted Rear Facing	Forward 9 *	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: __On __X Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 8 *	130	N/A	Suppressed
	Middle	131	N/A	Suppressed
	Rearward	127	N/A	Suppressed
Unbelted Rear Facing	Forward 7 *	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed
Unbelted Forward Facing	Forward 6 *	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the 6th Forward position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C40510	TEST DATE:	7/9/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Base: __On __Off X N/A-Constraint does not have a removable base

Manufacturer's design seat back angle: 22.5°
 Tested seat back angle: 22.5°
 Manufacturer's specified anchorage position: 2nd Down
 Tested anchorage position: 2nd Down

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	128	Suppressed
	Middle	129	Suppressed
	Rearward	131	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	131	Suppressed
	Middle	130	Suppressed
	Rearward	127	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Base: __On __Off X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	133	Suppressed
	Middle	131	Suppressed
	Rearward	132	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	130	Suppressed
	Middle	127	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Base: __On __Off X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 22.5°
 Tested seat back angle: 22.5°
 Manufacturer's specified anchorage position: 2nd Down
 Tested anchorage position: 2nd Down

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	127	Suppressed
	Middle	127	Suppressed
	Rearward	130	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	127	Suppressed
	Middle	132	Suppressed
	Rearward	128	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)

DATA SHEET 16 SUMMARY

Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K) Section A Car Bed

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	Newborn Infant	DUMMY SERIAL NO.:	003

CAR BED NAME:	Cosco
CAR BED MODEL:	Dream Ride 02-719
DATE OF MANUFACTURE:	6-16-2000

Base: __On __Off X N/A-Constraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Handle Down	Handle Up
Belted	Forward	Won't Fit	N/A
	Middle	Suppressed	N/A
	Rearward	Suppressed	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)

The CRS would not fit in the Forward Seat Slide position due to interference with the transmission shifter.

The CRS was orientated at 30° to fit in the Rearward Seat Slide position due to interference with the center console.

DATA SHEET 17 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Belt Positioning Booster

NHTSA No.:	C40510	TEST DATE:	7/13/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward 2 *	13	Suppressed
	Middle	17	Suppressed
	Rearward	15	Suppressed
Belted Forward Facing Cinched With Harness	Forward	133	Suppressed
	Middle	130	Suppressed
	Rearward	127	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C40510	TEST DATE:	7/13/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 22.5°
 Tested seat back angle: 22.5°
 Manufacturer's specified anchorage position: 2nd Down
 Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward 5 *	11	Suppressed
	Middle	15	Suppressed
	Rearward	13	Suppressed
Belted Forward Facing Cinched With Harness	Forward 5 *	130	Suppressed
	Middle	131	Suppressed
	Rearward	127	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 8 *	130	Suppressed
	Middle	131	Suppressed
	Rearward	133	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 4 *	130	Suppressed
	Middle	131	Suppressed
	Rearward	133	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	130	Suppressed
	Middle	127	Suppressed
	Rearward	128	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)

DATA SHEET 19 SUMMARY

Suppression Test Using An Unbelted 3 Year Old Dummy (Part 572, Subpart P)
No CRS

NHTSA No.:	C40510	TEST DATE:	7/12/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward	22.5	Suppressed
	Middle	22.5	Suppressed
	Rearward	22.5	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	46.5	Suppressed
	Middle	46.5	Suppressed
	Rearward	46.5	Suppressed
Position 3 Sitting on seat with back not against seat back	Forward	22.5	Suppressed
	Middle	22.5	Suppressed
	Rearward	22.5	Suppressed
Position 4 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	22.5	Suppressed
	Middle	22.5	Suppressed
	Rearward	22.5	Suppressed
Position 5 Standing on seat, facing forward	Forward	22.5	Suppressed
	Middle	22.5	Suppressed
	Rearward	22.5	Suppressed
Position 6 Kneeling on seat, facing forward	Forward	22.5	Suppressed
	Middle	22.5	Suppressed
	Rearward	22.5	Suppressed
Position 7 Kneeling on seat, facing rearward	Forward	22.5	Suppressed
	Middle	22.5	Suppressed
	Rearward	22.5	Suppressed
Position 8 Lying on seat. (Three designated seating positions only)	Forward	N/A	N/A
	Middle	N/A	N/A
	Rearward	N/A	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

DATA SHEET 20 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C40510	TEST DATE:	7/13/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	052

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	12	Suppressed
	Middle	10	Suppressed
	Rearward	17	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

DATA SHEET 20 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C40510	TEST DATE:	7/13/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	052

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	18	Suppressed
	Middle	11	Suppressed
	Rearward	15	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)

DATA SHEET 20 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C40510	TEST DATE:	7/13/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	052

BOOSTER SEAT NAME:	Evenflo
BOOSTER SEAT MODEL:	Right Fit 245
DATE OF MANUFACTURE:	6-26-2000

Manufacturer's design seat back angle: 22.5°
Tested seat back angle: 22.5°
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	10	Suppressed
	Middle	13	Suppressed
	Rearward	12	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)

DATA SHEET 21 SUMMARY

Suppression Test Using An Unbelted 6 Year Old Dummy (Part 572, Subpart N)
No CRS

NHTSA No.:	C40510	TEST DATE:	7/13/04
LABORATORY:	MGA	TECHNICIANS:	JL/TB
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	052

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward 7 *	22.6	Suppressed
	Middle	22.6	Suppressed
	Rearward	22.6	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward 9 *	46.8	Suppressed
	Middle 9 *	46.8	Suppressed
	Rearward 9 *	46.8	Suppressed
Position 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	22.6	Suppressed
	Middle	22.6	Suppressed
	Rearward	22.6	Suppressed
Position 4 Sitting on seat with back against seat back then leaning on the door	Forward 9 *	22.6	Suppressed
	Middle	22.6	Suppressed
	Rearward	22.6	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

* The ATD would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 27 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 1 - Chin On Module (S26.2)

NHTSA No.:	C40510	TEST DATE:	7/15/04
LABORATORY:	MGA	TECHNICIANS:	WD/DW/BR
DUMMY TYPE:	5 th Percentile Female	DUMMY SERIAL NO.:	506

Manufacturer's design seat back angle: 22.5°
 Tested seat back angle: 22.5°
 Tested seat position: Full Aft

Tested steering wheel angle: 23.4°
 Thorax cavity angle: 29.2°
 Chin Point height: 3 mm Below Module

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	120.0	120.3

5th Percentile Female SN 506 Position 1 (Chin On Module) 7-15-04

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	4
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	10.9
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	7.1
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	219.3
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	4.5
Neck Tension	2070 N	697
Neck Compression	2520 N	7
Chest g	60 g	7
Chest Displacement	52 mm	6
Left Femur	6805 N	54
Right Femur	6805 N	87

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment
 designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
 Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

DATA SHEET 28 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 2 - Chin On Rim (S26.3)

NHTSA No.:	C40510	TEST DATE:	7/29/04
LABORATORY:	MGA	TECHNICIANS:	WD/DW/BR
DUMMY TYPE:	5 th Percentile Female	DUMMY SERIAL NO.:	505

Manufacturer's design seat back angle: 22.5°
 Tested seat back angle: 22.5°
 Tested seat position: Full Aft

Tested steering wheel angle: 20.8°*
 Thorax cavity angle: 27.0°
 Chin Point height: 16 mm Below Rim

*The dummy contacted the windshield with the steering wheel at mid position. The steering controls were adjusted to lower the upper steering wheel rim the necessary amount to bring the Chin Point coincident with the upper steering wheel rim. The rear thorax cavity was adjusted along with the steering wheel angle.

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	120.0	120.3

5th Percentile Female SN 505 Position 2 (Chin On Rim) 7-29-04

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	11
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	17.0
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	30.6
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	190.5
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	93.4
Neck Tension	2070 N	910
Neck Compression	2520 N	52
Chest g	60 g	25
Chest Displacement	52 mm	21
Left Femur	6805 N	316
Right Femur	6805 N	360

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
 Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

DATA SHEET 30
VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Clark Subrt

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	X 32 to 40 kmph	0 to 48 kmph	0 to 56 kmph
DRIVER DUMMY:	X 5 TH female		50 th Male
PASSENGER DUMMY:	X 5 TH female		X 5th Center Rear

- | | | |
|----------|-----|---|
| X | 1. | Fill the transmission with transmission fluid to the satisfactory range. |
| X | 2. | Drain fuel from vehicle |
| X | 3. | Run the engine until fuel remaining in the fuel delivery system is used and the engine stops. |
| X | 4. | Record the useable fuel tank capacity supplied by the COTR |
| X | | Useable Fuel Tank Capacity supplied by COTR: 55 liters (14.5 gallons) |
| X | 5. | Record the fuel tank capacity supplied in the owner's manual. |
| X | | Useable Fuel Tank Capacity in owner's manual: 55 liters (14.5 gallons) |
| X | 6. | Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank. |
| X | | Amount Added: 55 liters (14.5 gallons) |
| X | 7. | Fill the coolant system to capacity. |
| X | 8. | Fill the engine with motor oil to the Max. mark on the dip stick. |
| X | 9. | Fill the brake reservoir with brake fluid to its normal level. |
| X | 10. | Fill the windshield washer reservoir to capacity. |
| X | 11. | Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner's manual. |

Tire placard pressure:	RF:	30 psi	LF:	30 psi	RR:	30 psi	LR:	30 psi
Owner's manual pressure:	RF:	30 psi	LF:	30 psi	RR:	30 psi	LR:	30 psi
Actual inflated pressure:	RF:	30 psi	LF:	30 psi	RR:	30 psi	LR:	30 psi

- | | | |
|----------|-----|--|
| X | 12. | Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight). |
|----------|-----|--|

Right Front (kg):	397.8	Right Rear (kg):	248.1
Left Front (kg):	402.4	Left Rear (kg):	245.4
Total Front (kg):	800.2	Total Rear (kg):	493.5
% Total Weight:	61.9	% Total Weight:	38.1
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):		1293.7	

- | | | |
|----------|------|---|
| X | 13. | UVW Test Vehicle Attitude: (All dimensions in millimeters) |
| X | 13.1 | Mark a point on the vehicle above the center of each wheel. |
| X | 13.2 | Place the vehicle on a level surface. |

- ☒ 13.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements

RF:	664	LF:	663	RR:	657	LR:	659
-----	-----	-----	-----	-----	-----	-----	-----

- ☒ 14. Calculate the Rated Cargo and Luggage Weight (RCLW).
- ☒ 14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

- ☒ Yes, go to 14.3 On inside left front door frame
- ☐ No, go to 14.2

- ☐ 14.2 VCW = Gross Vehicle Weight – UVW

$$VCW = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

- ☒ 14.3 VCW = 385 kg (850 lbs)

- ☒ 14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?

- ☒ Yes, go to 14.6
- ☐ No, go to 14.5 and skip 14.6

- ☐ 14.5 DSC = Total number of seat belt assemblies =

- ☒ 14.6 DSC = 5

- ☒ 14.7 RCLW = VCW – (68 kg x DSC) = 385 kg - (68 kg x 5) = 45 kg

- ☒ 14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?

☐ Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)

☒ No, use the RCLW calculated in 14.7

- ☒ 15. Fully Loaded Weight (100% fuel fill)

- ☒ 15.1 Place the appropriate test dummy in both front outboard seating positions.

Driver: X 5th female 50th male
 Passenger: X 5th female 50th male

- ☒ 15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

- ☒ 15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))

- ☒ 15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

Right Front (kg):	442.7	Right Rear (kg):	285.8
Left Front (kg):	434.1	Left Rear (kg):	272.6
Total Front (kg):	876.8	Total Rear (kg):	558.4
% Total Weight:	61.1	% Total Weight:	38.9
% GVW	54.5	% GVW	47.7
Fully Loaded Weight = Total Front Plus Total Rear (kg):			1435.2

- ☒ 16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

- ☒ 16.1 Place the vehicle on a level surface.

- X** 16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements
- | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| RF: | 648 | LF: | 649 | RR: | 643 | LR: | 648 |
|-----|-----|-----|-----|-----|-----|-----|-----|
- X** 17. Drain the fuel system
- X** 18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," fill the fuel tank to 92 - 94 percent of useable capacity.
- X** Fuel tank capacity x .92 = 55.0 liters (14.5 gallons) x .92 = 50.6 liters (13.4 gallons)
- X** Amount added 50.6 liters (13.4 gallons) 92%
- X** 19. Crank the engine to fill the fuel delivery system with Stoddard solvent
- X** 20. Calculate the test weight range.
- X** 20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)
- 1436.7 kg = 1293.7 kg + 45.0 kg + 98.0 kg
- X** 20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)
 Max. Test Weight = Calculated Test Weight – 4.5 kg = 1432.2 kg
 Min. Test Weight = Calculated Test Weight – 9 kg = 1427.7 kg
- X** 21. Remove the RCLW from the cargo area.
- X** 22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.
- X** 23. Vehicle Components Removed For Weight Reduction:
Rear tail lights, tool & jack, both outside mirrors, trunk interior, rear speakers, wheel cover, spare tire, exhaust and muffler
- X** 24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.
- X** 25. If necessary, add ballast to achieve the actual test weight.
- X** N/A
- X** Weight of Ballast:
- X** 26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.
- X** 27. Record the vehicle weight at each wheel to determine the actual test weight.

Right Front (kg):	439.5	Right Rear (kg):	296.7
Left Front (kg):	447.2	Left Rear (kg):	301.2
Total Front (kg):	886.7	Total Rear (kg):	597.9
% Total Weight:	59.7	% Total Weight:	40.3
% GVW	54.5	% GVW	47.7
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			1484.6

<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>	28.	Is the test weight between the Max. Weight and the Min. Weight (See 20.2)?								
		<div style="border: 1px solid black; padding: 2px; text-align: center;">Yes</div>								
		<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div> No, explain why not. 5%th female rear center seat dummy causes test weight to be over by approximately 52 kg (115 lbs)								
<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>	29.	Test Weight Vehicle Attitude: (all dimensions in millimeters)								
<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>	29.1	Place the vehicle on a level surface								
<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>	29.2	Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">RF:</td> <td style="width: 25%; text-align: center;">647</td> <td style="width: 25%;">LF:</td> <td style="width: 25%; text-align: center;">646</td> <td style="width: 25%;">RR:</td> <td style="width: 25%; text-align: center;">636</td> <td style="width: 25%;">LR:</td> <td style="width: 25%; text-align: center;">638</td> </tr> </table>	RF:	647	LF:	646	RR:	636	LR:	638
RF:	647	LF:	646	RR:	636	LR:	638			
<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>	30.	Summary of test attitude								
<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>	30.1	AS DELIVERED:								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">RF:</td> <td style="width: 25%; text-align: center;">664</td> <td style="width: 25%;">LF:</td> <td style="width: 25%; text-align: center;">663</td> <td style="width: 25%;">RR:</td> <td style="width: 25%; text-align: center;">657</td> <td style="width: 25%;">LR:</td> <td style="width: 25%; text-align: center;">659</td> </tr> </table>	RF:	664	LF:	663	RR:	657	LR:	659
RF:	664	LF:	663	RR:	657	LR:	659			
		AS TESTED:								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">RF:</td> <td style="width: 25%; text-align: center;">647</td> <td style="width: 25%;">LF:</td> <td style="width: 25%; text-align: center;">646</td> <td style="width: 25%;">RR:</td> <td style="width: 25%; text-align: center;">636</td> <td style="width: 25%;">LR:</td> <td style="width: 25%; text-align: center;">638</td> </tr> </table>	RF:	647	LF:	646	RR:	636	LR:	638
RF:	647	LF:	646	RR:	636	LR:	638			
		FULLY LOADED:								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">RF:</td> <td style="width: 25%; text-align: center;">648</td> <td style="width: 25%;">LF:</td> <td style="width: 25%; text-align: center;">649</td> <td style="width: 25%;">RR:</td> <td style="width: 25%; text-align: center;">643</td> <td style="width: 25%;">LR:</td> <td style="width: 25%; text-align: center;">648</td> </tr> </table>	RF:	648	LF:	649	RR:	643	LR:	648
RF:	648	LF:	649	RR:	643	LR:	648			
<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>	30.2	Is the "as tested" test attitude equal to or between the "fully loaded" and "as delivered" attitude?								
		<div style="border: 1px solid black; padding: 2px; text-align: center;">Yes</div>								
		<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div> No, explain why not. 5%th female rear center seat dummy causes test weight to be over by approximately 52 kg (115 lbs)- this affects vehicle attitude								

REMARKS:

I certify that I have read and performed each instruction.

Signature:

Clark Suleit

Date:

8/25/04

DATA SHEET 31

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Clark Subrt

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	X 32 to 40 kmph	0 to 48 kmph	0 to 56 kmph
DRIVER DUMMY:	X 5 TH female		50 th Male
PASSENGER DUMMY:	X 5 TH female		X 5th Center Rear

- X

 1. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
- X

 2. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
- X

 3. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
- X

 4. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
- X

 5. Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart.
- X

 6. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
- X

 7. Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart.
- X

 8. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart.

REMARKS:

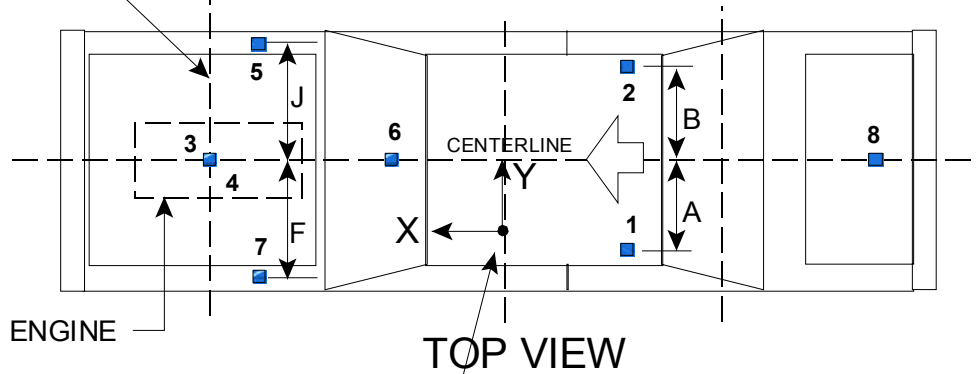
I certify that I have read and performed each instruction.

Signature: 

Date: 8/25/04

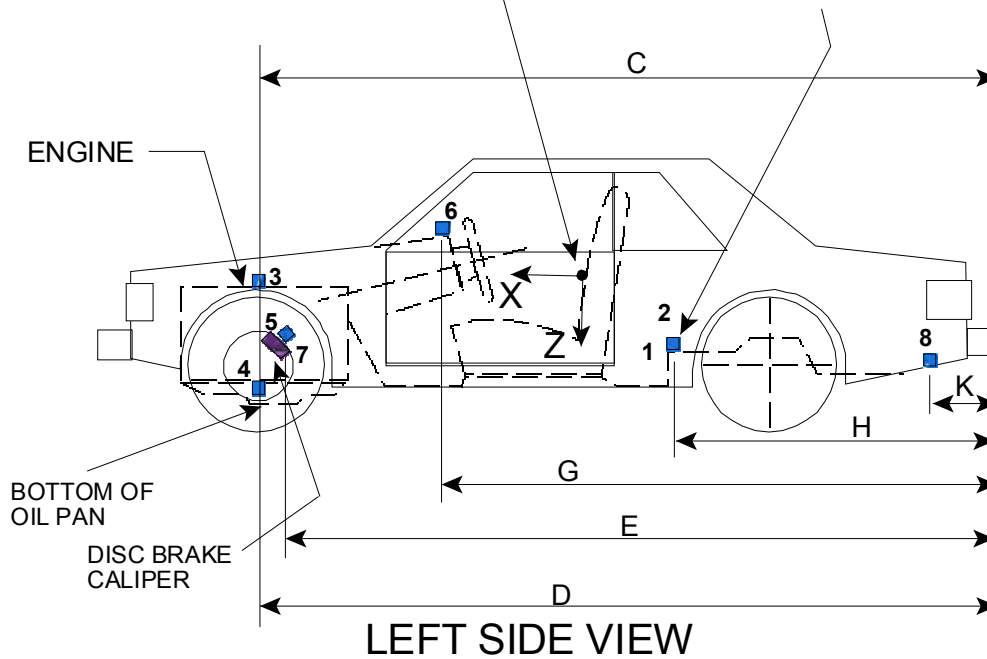
VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

CENTERLINE OF
FRONT WHEELS



ACCELEROMETER
COORDINATE SYSTEM
(POSITIVE DIRECTION SHOWN)

REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



Dimensions Corresponding To The Letters "A" Through "K" (Excluding "I") Are Recorded In The Table On The Following Page.
Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.

DATA SHEET 31
VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

<u>DIMENSION</u>	<u>LENGTH (mm)</u>	
<u>PRETEST VALUES</u>		
<u>A</u> (LH Rear Seat Xmbr)	348	
<u>B</u> (RH Rear Seat Xmbr)	348	
<u>C</u> (Engine Top)	3848	
<u>D</u> (Engine Bottom)	3750	
<u>E</u> (Caliper)	Right Side 3767	Left Side 3767
<u>F</u> (Left Caliper)	670	
<u>G</u> (IP)	3073	
<u>H</u> (Seat)	1766	
<u>J</u> (Right Caliper)	670	
<u>K</u> (Trunk)	930	
<u>POST TEST VALUES</u>		
<u>A</u> (LH Rear Seat Xmbr)	348	
<u>B</u> (RH Rear Seat Xmbr)	348	
<u>C</u> (Engine Top)	3813	
<u>D</u> (Engine Bottom)	3696	
<u>E</u> (Caliper)	Right Side 3637	Left Side 3619
<u>F</u> (Left Caliper)	675	
<u>G</u> (IP)	3073	
<u>H</u> (Seat)	1766	
<u>J</u> (Right Caliper)	680	
<u>K</u> (Trunk)	930	

DATA SHEET 32

PHOTOGRAPHIC TARGETS

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Clark Subrt

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u> </u> 0 to 48 kmph	<u> </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 TH female		<u> </u> 50 th Male
PASSENGER DUMMY:	<u>X</u> 5 TH female		<u>X</u> 5th Center Rear

- | | | |
|----------|------|--|
| X | 1. | FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B) |
| X | 1.1 | Targets A1 and A2 are on flat rectangular panels. |
| X | 1.2 | Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it. |
| X | | Distance between targets (mm): 100 mm |
| X | 1.3 | Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it. |
| X | | Distance between targets (mm): 100 mm |
| X | 1.4 | The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm. |
| X | | Distance between the first and last circular targets (mm): 915 mm |
| X | 1.5 | Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. |
| X | 1.6 | Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy. |
| X | 1.7 | Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart. |
| X | | Distance between targets (mm): 610 mm |
| X | 1.8 | Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart. |
| X | | Distance between targets (mm): 610 mm |
| X | 1.9 | Place tape with squares having alternating colors on the top portion of the steering wheel. |
| X | 1.10 | Chalk the bottom portion of the steering wheel |
| X | 1.11 | Is this an offset test? |
| | | <input type="checkbox"/> Yes, continue with this section |
| | | X No, go to 2. |
| | 1.12 | Measure the width of the vehicle. |
| | | Vehicle width (mm): |
| | 1.13 | Find the centerline of the vehicle. (½ of the vehicle width) |

<input type="checkbox"/>	1.14	Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
<input type="checkbox"/>	1.15	Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D)
<input checked="" type="checkbox"/>	2.	Barrier Targeting
<input checked="" type="checkbox"/>	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy
<input checked="" type="checkbox"/>	2.2	Targets D1 and D2 are on a rectangular panel.
<input checked="" type="checkbox"/>	2.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.
<input checked="" type="checkbox"/>		Distance between circular targets on D1 (mm): 100mm
<input checked="" type="checkbox"/>		Distance between circular targets on D2 (mm): 100mm
<input checked="" type="checkbox"/>	3.	FMVSS 208 Dummy Targeting Requirements
<input checked="" type="checkbox"/>	3.1	Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
<input checked="" type="checkbox"/>	3.2	Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
<input checked="" type="checkbox"/>	3.3	Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
<input checked="" type="checkbox"/>	3.4	Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
<input checked="" type="checkbox"/>	4.	FMVSS 204 Targeting Requirements
<input checked="" type="checkbox"/>	4.1	Is an FMVSS 204 indicant test ordered on the "COTR Vehicle Work Order?"
<input type="checkbox"/>		Yes, continue with this form.
<input checked="" type="checkbox"/>		No, this form is complete. (Removed at manufacturer's request with COTR approval)
<input type="checkbox"/>	4.2	Resection panel (Figure 28C)
<input type="checkbox"/>	4.2.1	The panel deviates no more than 6 mm from perfect flatness when suspended vertically
<input type="checkbox"/>	4.2.2	The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
<input type="checkbox"/>	4.2.3	The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
<input type="checkbox"/>	4.2.4	Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.
<input type="checkbox"/>	4.2.5	The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.
<input type="checkbox"/>	4.3	Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.



- 4.4 Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash

REMARKS: Center Rear Passenger Dummy Target Information:

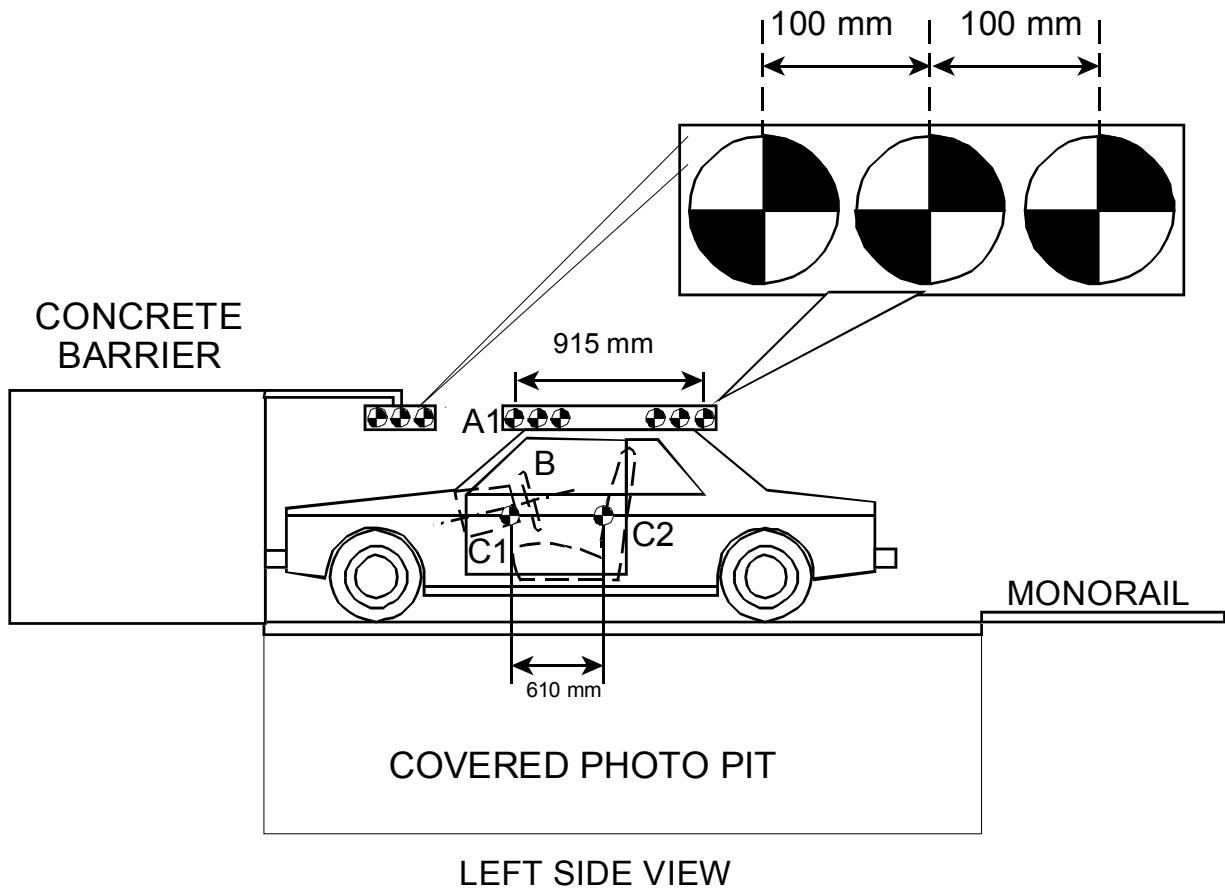
Horizontal distance from camera to dummy reference targets: 656 mm
Horizontal distance from camera to vehicle reference targets: 1416 mm
Distance between 1" reference targets: 75 mm
Reference targets were placed on inch tape for continuous reference.

I certify that I have read and performed each instruction.

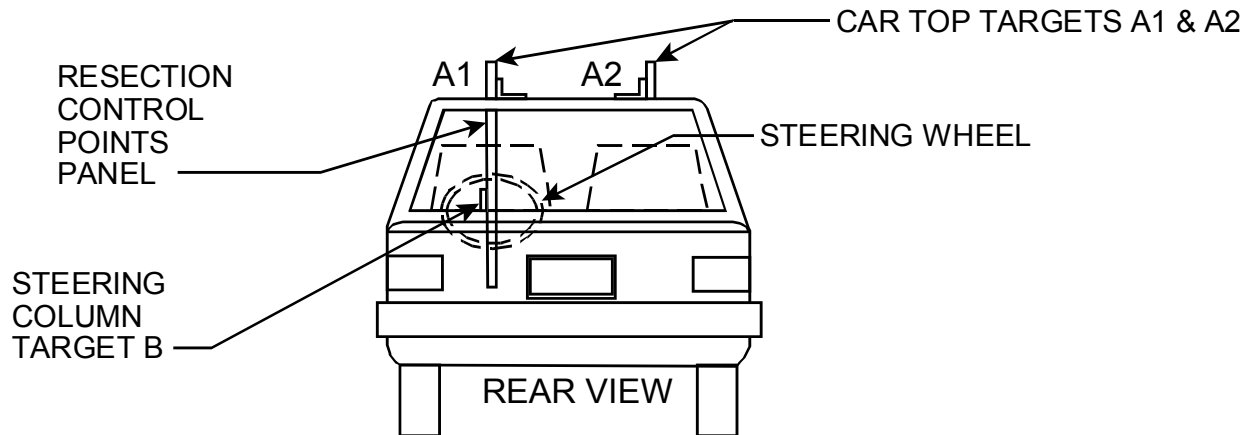
Signature: Clark Subit

Date: 8/27/04

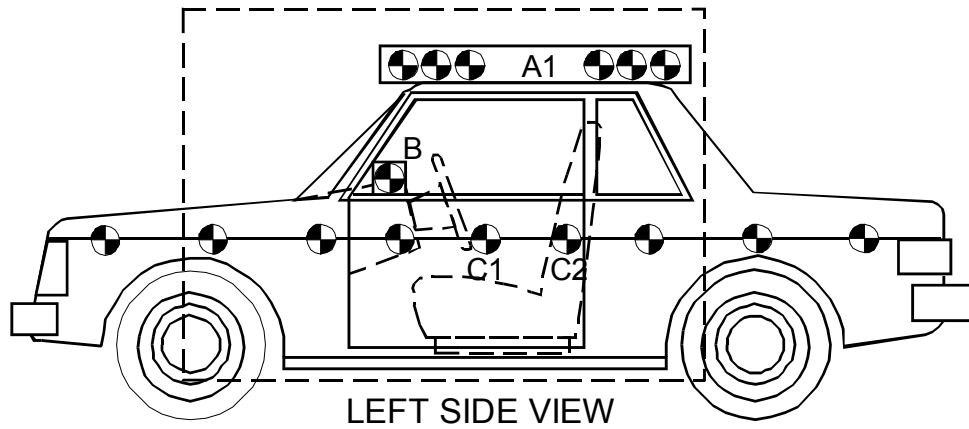
REFERENCE PHOTO TARGETS



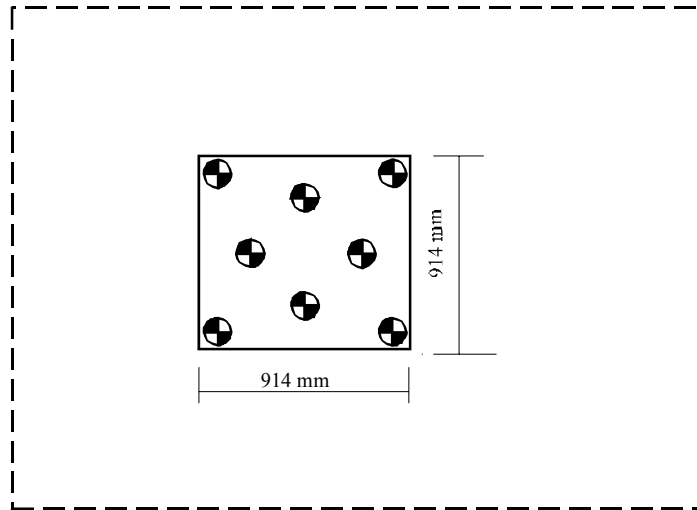
RESECTION PANEL TARGETING ALIGNMENT



TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION



PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW



LEFT SIDE VIEW

DATA SHEET 33
CAMERA LOCATIONS

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance

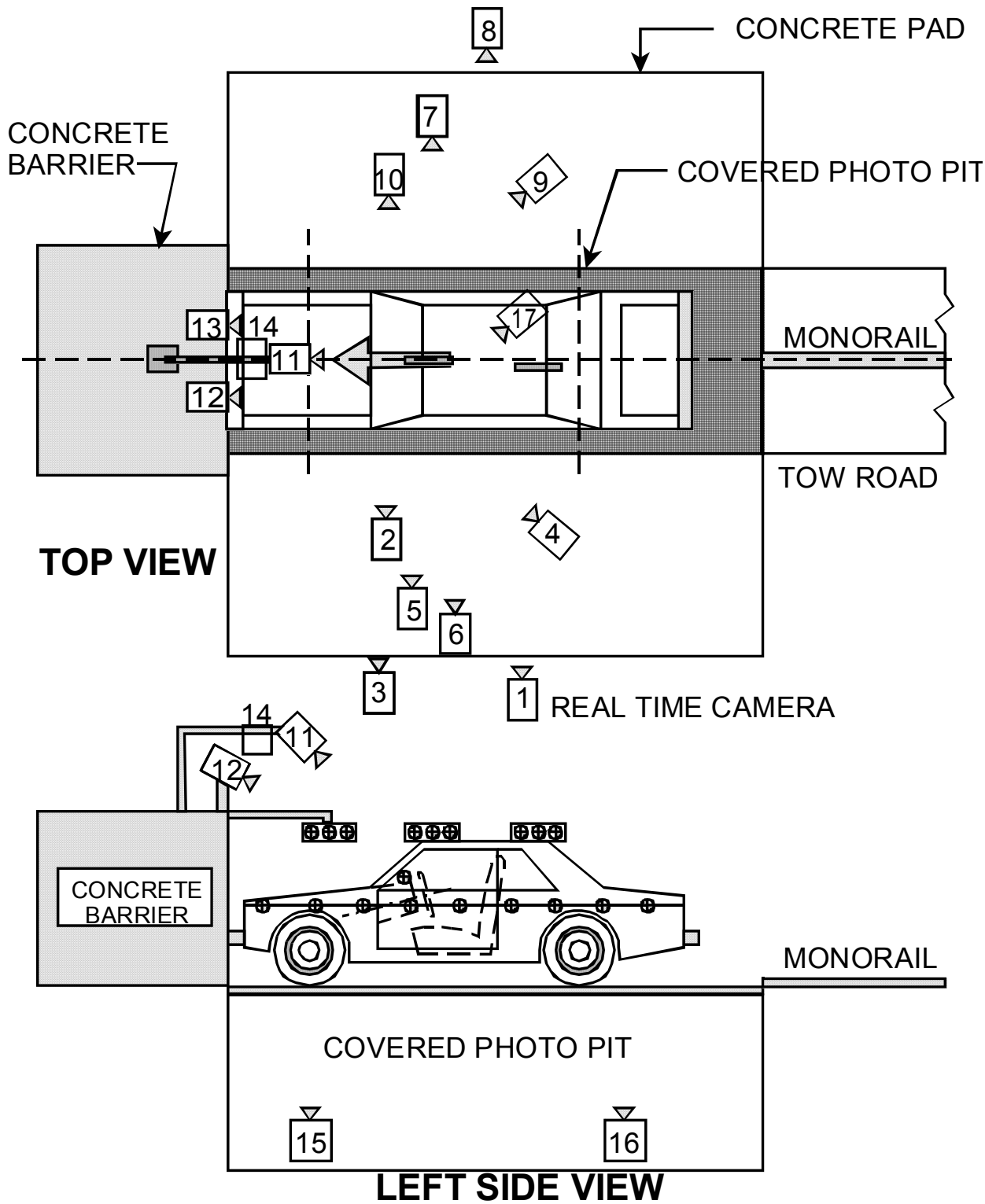
NHTSA No.: C40510
Test Date: 8/27/04
Time: 12:23 pm

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			LENS (mm)	SPEED (fps)
		X	Y	Z		
1	Real Time Left Side View				13	24
2	Left Side View (Barrier face to front seat backs)	852	-7440	1460	24	1000
3	Left Side View (Driver)	1852	-8080	1539	50	1000
4	Left Side View (B-post aimed toward center of steering wheel)	5930	-4640	1970	50	1000
5	Left Side View (Steering Column)	2185	-5430	1560	19	1000
6	Left Side View (Steering Column)	2140	-5430	1033	19	1000
7	Right Side View (Overall)	2330	6530	1785	19	1000
8	Right Side View (Passenger)	1660	8600	1640	50	1000
9	Right Side View (Angle)	5880	4120	1965	50	1000
10	Right Side View (Front door)	815	7400	1575	25	1000
11	Front View Windshield	-470	0	2865	19	1000
12	Front View Driver	105	-455	1750	13	1000
13	Front View Passenger	70	475	1700	13	1000
14	Overhead Barrier Impact View	940	0	5050	14	1000
15	Pit Camera Engine View	1130	0	-3150	19	1000
16	Pit Camera Fuel Tank View	2695	0	-3150	19	1000
17	Onboard Rear Passenger View				13	505

***COORDINATES**

+X – forward of impact plane
+Y – right of monorail centerline
+Z – above ground level

CAMERA POSITIONS FOR FMVSS 208



DATA SHEET 34

APPENDIX G DUMMY POSITIONING PROCEDURES FOR 5th% DRIVER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C40510
Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	<input checked="" type="checkbox"/> 32 to 40 kmph	<input type="checkbox"/> 0 to 48 kmph	<input type="checkbox"/> 0 to 56 kmph
DRIVER DUMMY:	<input checked="" type="checkbox"/> 5 TH female		<input type="checkbox"/> 50 th Male
PASSENGER DUMMY:	<input checked="" type="checkbox"/> 5 TH female		<input checked="" type="checkbox"/> 5th Center Rear

- X 1. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment position. (S16.2.10.1)
X N/A – No lumbar adjustment
- X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment
- X 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
X N/A – No independent fore-aft seat cushion adjustment
- X 4. Use the seat markings determined during the completion of Data Sheet 14 to set the rearmost fore-aft position, mid-height position and the seat cushion mid-angle. (S16.3.2.1.1)
- X 5. If the vehicle has an adjustable accelerator pedal, place it in the full forward position. (S16.3.2.2.1)
X N/A accelerator pedal not adjustable
- X 6. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions as determined in data sheet 14. (S16.2.9)
- X 7. Fully recline the seat back. (S16.3.2.1.2)
 N/A seat back not adjustable.
- X 8. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.2.1.2)
- X 9. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 1.18 of Data Sheet 14 (S16.3.2.1.3 and S16.3.2.1.4)
- X 10. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.2.1.5)
- X 11. Set the angle between the legs and the thighs to 120 degrees. (S16.3.2.1.6)

- ☒ 12. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the longitudinal seat cushion marking as determined in item 1.18 of Data Sheet 14. (S16.3.2.1.6)
Record Knee Separation 162 mm
- ☒ 13. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.2.1.6)
☐ Pelvis contacted seat back.
☒ Calves contacted seat cushion.
- ☒ 14. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side to side three time. (S16.3.2.1.7)
- ☒ 15. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.2.1.8)
- ☒ 16. Position the right foot until the foot is in line with a longitudinal vertical plane passing through the center of the accelerator pedal. Maintain the leg and thigh in a vertical plane. (S16.3.2.1.8)
- ☒ 17. Rotate the left leg and thigh laterally to equalize the distance between each knee and the longitudinal seat cushion marking as determined in item 1.18 of Data Sheet 14. (S16.3.2.1.8)
- ☒ 18. Attempt to return the seat to the foremost fore-aft position, mid-height, and seat cushion mid-angle. The foot may contact and depress the accelerator and/or change the angle of the foot with respect to the leg. (S16.3.2.1.8)
☒ Foremost position achieved. Proceed to step 23.
☐ Foremost not achieved because of foot interference. Proceed to step 20.
☐ Foremost not achieved because of steering wheel contact.
- ☐ 19. If the dummy's legs contact the steering wheel, move the steering wheel up the minimum amount required to avoid contact. If the steering wheel is not adjustable separate the knees the minimum required to avoid contact. (S16.3.2.1.8)
☐ N/A- there was no leg contact
☐ Steering wheel repositioned
☐ Knees separated
- ☐ 20. If the left foot interferes with the clutch or brake pedals, rotate the left foot about the leg to provide clearance. If this is not sufficient, rotate the thigh outboard at the hip the minimum amount required for clearance. (S16.3.2.1.8)
☐ N/A, No foot interference with pedals.
☐ Foot adjusted to provide clearance.
☐ Foot and Thigh adjusted to provide clearance.
- ☐ 21. Continue to move the seat. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)

☐ Foremost, mid-height position and the seat cushion mid-angle reached

☐ Dummy contact. Clearance set at maximum of 5mm
Measured Clearance _____

☐ Dummy Contact. Seat set at nearest detent position.
Seat position ____ detent positions rearward of foremost
(Foremost is position zero)

- ☐ 22. If the steering wheel was repositioned in step 19, return the steering wheel to the original position. If the steering wheel contacts the dummy before reaching the original position, position the wheel until a maximum clearance of 5mm (.2 inches) is achieved, or the steering wheel is in the closest detent position that does not cause dummy contact.
(S16.3.2.1.8)

☐ N/A Steering wheel was not repositioned.

☐ Original position achieved.

☐ Dummy contact. Clearance set at maximum of 5mm
Measured Clearance _____

☐ Dummy Contact. Steering wheel set at nearest detent position.
Steering wheel position ____ detent positions upward of original position.
(Original position is position zero)

- ☒ 23. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If the head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle.
(S16.3.2.1.9)

☒ Head Level Achieved. (Check all that apply)

☒ Head leveled using the adjustable seat back

☐ Head leveled using the neck bracket.

Head Angle ____ 0.0 ____ degrees

☐ Head Level NOT Achieved. (Check all that apply)

☐ Head adjusted using the adjustable seat back

☐ Head adjusted using the neck bracket.

Head Angle ____ degrees

- ☒ 24. Verify the pelvis is not interfering with the seat bight. (S16.3.2.1.9)

☒ No interference

☐ Pelvis moved forward the minimum amount so that it is not caught in the seat bight.

- ☒ 25. Verify the dummy abdomen is properly installed. (S16.3.2.1.9)

☒ Abdomen still seated properly into dummy

☐ Abdomen was adjusted because it was not seated properly into dummy

X 26. Head Angle

 N/A, neither the pelvis nor the abdomen were adjusted.

X 26.1 Head still level (Go to 27)

 26.2 Head level adjusted

 Head Level Achieved. (Check all that apply)

 Head leveled using the adjustable seat back

 Head leveled using the neck bracket.

Head Angle _____ degrees

 Head Level NOT Achieved. (Check all that apply)

 Head level adjusted using the adjustable seat back

 Head level adjusted using the neck bracket.

Head Angle _____ degrees

X 27. If the dummy torso contacts the steering wheel while performing step 23, reposition the steering wheel in the following order to eliminate contact.

X N/A, No dummy torso contact with the steering wheel.

X 27.1 Adjust telescoping mechanism.

X N/A No telescoping adjustment.

 Adjustment performed (fill in appropriate change)

Steering wheel moved _____ detent positions in the forward direction.

Steering wheel moved _____ mm in the forward direction.

X 27.2 Adjust tilt mechanism.

 N/A No tilt adjustment.

X No adjustment performed.

 Adjustment performed.

Steering wheel moved _____ detent positions Upward/Downward.
(circle one)

Steering wheel moved _____ degrees Upward/Downward

X 27.3 Adjust Seat in the aft direction.

X No Adjustment performed.

 Seat moved aft _____ mm from original position.

 Seat moved aft _____ detent positions from the original position.

X 28. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees \pm 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level, adjust the pelvis as closely as possible to the angle range, but keep the head level.

 Pelvic angle set to 20.0 degrees \pm 2.5 degrees.

X Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.

X Record the pelvic angle: 26.2 degrees

- ☒ 29. Check the dummy for contact with the interior after completing adjustments.
☒ No contact.
☐ Dummy in contact with interior.
 ☐ Seat moved aft ____ mm from the previous position.
 ☐ Seat moved aft ____ detent positions from the previous position.
- ☒ 30. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward.
☒ N/A, Seat already at foremost position.
☐ Clearance unchanged. No adjustments required.
☐ Additional clearance available
 ☐ Seat moved Forward ____ mm from the previous position.
 ☐ Seat moved Forward ____ detent positions from the previous position.
- ☒ 31. Driver's foot positioning, right foot. Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 32 otherwise, proceed to step 33.
- ☒ 32. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 32.6 shall be completed in all cases.
- ☒ 32.1 With the rear of the heel contacting the floor pan, move the foot forward until pedal contact occurs or the foot is at the full forward position.
- ☐ 32.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position.
- ☐ 32.3 Extend the leg, allowing the heel to lose contact with the floor until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
- ☐ 32.4 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
- ☐ 32.5 Align the centerline of the foot with the vertical-longitudinal plane passing through the center of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
- ☒ 32.6 Record foot position
 ☒ Pedal Contact achieved. Contact occurred at step 32.1 .
 ☒ Heel contacts floor pan
 ☐ Heel set _____ mm from floor pan.

 ☐ Pedal Contact not achieved. Heel set _____ mm from the floor pan.

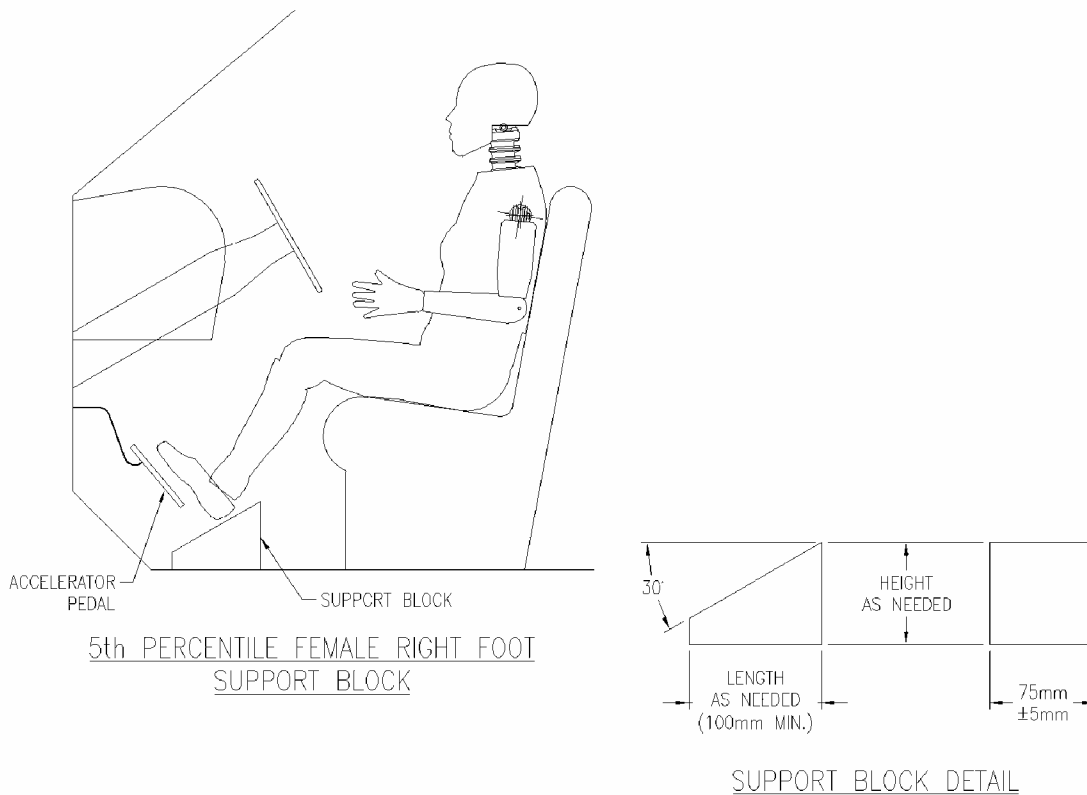


FIGURE G1

- ___33. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 33.5 shall be completed in all cases.
 - ___33.1 Extend the leg until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
 - ___33.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
 - ___33.3 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
 - ___33.4 Align the centerline of the foot in the same horizontal plane as the centerline of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.

X 33.5 Record foot position

X Pedal Contact achieved. Contact occurred at step 32.1.

___ Heel set _____ mm from floor pan.

___ Pedal Contact not achieved. Heel set _____ mm from the floor pan.

X 34. Driver's foot positioning, left foot.

X 34.1 Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 34.2, otherwise position the leg as perpendicular to the thigh as possible with the foot parallel to the floor pan.

X 34.2 Place the foot on the toe board with the heel resting on the floor pan as close to the intersection of the floor pan and the toe board as possible. Adjust the angle of the foot if necessary to contact the toe board. If the foot will not contact the toe board, set the foot perpendicular to the leg, and set the heel on the floor pan as far forward as possible. Do not place the foot on the wheel well projection or footrest. If the pedals interfere with the placement of the foot, reposition the foot by rotating the foot about the leg, or rotate the leg outboard about the hip if necessary.

___ Foot rotated about the leg

___ Foot rotated about the leg, and the leg rotated about the hip.

X No pedal interference

X 34.3 Record foot position.

___ Heel does not contact floor pan.

___ Foot placed on toe board.

X Foot placed on floor pan.

X 35. Driver arm/hand positioning.

X 35.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

X 35.2 Place the palms of the dummy in contact with the outer part of the steering wheel rim at its horizontal centerline with the thumbs over the steering wheel rim. (S16.3.2.3.2)

X 35.3 If it is not possible to position the thumbs inside the steering wheel rim at its horizontal centerline, then position them above and as close to the horizontal centerline of the steering wheel rim as possible. (S16.3.2.3.3)

X 35.4 Lightly tape the hands to the steering wheel rim so that if the hand of the test dummy is pushed upward by a force of not less than 9 N (2 lb) and not more than 22 N (5 lb), the tape releases the hand from the steering wheel rim. S16.3.2.3.4

X 36. Adjustable head restraints

___ N/A, there is no head restraint adjustment

X 36.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 37.

☒ 36.2 Adjust each head restraint vertically so that the horizontal plane determined in item 3 of Data Sheet 14 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

☒ 36.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)

☐ N/A midpoint position attained in previous step

☒ Headrest set at nearest detent above the head CG

☐ 36.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

☒ 37. Driver and passenger manual belt adjustment (for tests conducted with a belted dummy). (S16.3.5) **Unbelted Test**

☐ 37.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female.

This information will be supplied by the COTR.

Manufacturer's specified position _____

Actual Position _____

☐ 37.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

☐ 37.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

☐ 37.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 8/27/04

APPENDIX G
DUMMY POSITIONING PROCEDURES
FOR 5th% PASSENGER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	<input checked="" type="checkbox"/> 32 to 40 kmph	<input type="checkbox"/> 0 to 48 kmph	<input type="checkbox"/> 0 to 56 kmph
DRIVER DUMMY:	<input checked="" type="checkbox"/> 5 TH female	<input type="checkbox"/> 50 th Male	
PASSENGER DUMMY:	<input checked="" type="checkbox"/> 5 TH female	<input checked="" type="checkbox"/> 5th Center Rear	

(Check this item ONLY if it applies to this vehicle.)

 The passenger seat adjustments are controlled by the adjustments made to the driver's seat. Therefore, positioning of the passenger dummy is made simultaneously with the driver dummy. Adjustments made to the seat to position the driver will over ride any adjustments that would normally be made to position the passenger. (S16.2.10.3)

- X 1. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment position. (S16.2.10.1)
X N/A – No lumbar adjustment
- X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment
- X 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
X N/A – No independent fore-aft seat cushion adjustment
- X 4. Use the seat markings determined during the completion of Data Sheet 14 to set the rearmost fore-aft position, mid-height position and the seat cushion mid-angle. (S16.3.3.1.1)
- X 5. Fully recline the seat back. (S16.3.3.1.2)
 N/A seat back not adjustable.
- X 6. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.3.1.2)
- X 7. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion marking that was determined in item 2.19 of Data Sheet 14 (S16.3.3.1.3 and S16.3.3.1.4)
- X 8. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.3.1.5)
- X 9. Set the angle between the legs and the thighs to 120 degrees. (S16.3.3.1.6)

- X 10. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the longitudinal seat cushion marking that was determined in item 2.19 of Data Sheet 14. (S16.3.3.1.6)
Record Knee Separation 166 mm
- X 11. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.3.1.6)
 ___ Pelvis contacted seat back.
 X Calves contacted seat cushion.
- X 12. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side-to-side three times. (S16.3.3.1.7)
- X 13. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.3.1.8)
- X 14. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.3.1.8)
 X Foremost, mid-height position and the seat cushion mid-angle reached
 ___ Dummy contact. Clearance set at maximum of 5mm
 Measured Clearance _____
 ___ Dummy Contact. Seat set at nearest detent position.
 Seat position ___ detent positions rearward of foremost
 (Foremost is position zero)
- X 15. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, adjust the head as closely as possible to the ± 0.5 degree range. (S16.3.3.1.9 and S16.3.3.1.10)
 (Check All That Apply)
 ___ Seat back not adjustable
 ___ Seat back not independent of driver side seat back
 X Head Level Achieved. (Check all that apply)
 X Head leveled using the adjustable seat back
 ___ Head leveled using the neck bracket.
 Head Angle 0.1 degrees
 ___ Head Level NOT Achieved. (Check all that apply)
 ___ Head adjusted using the adjustable seat back
 ___ Head adjusted using the neck bracket.
 Head Angle _____ degrees

- ☒ 16. Verify the pelvis is not interfering with the seat bight. (S16.3.3.1.9)
☒ No interference
☐ Pelvis moved forward the minimum amount so that it is not caught in the seat bight.
- ☒ 17. Verify the dummy abdomen is properly installed. (S16.3.3.1.9)
☒ Abdomen still seated properly into dummy
☐ Abdomen was adjusted because it was not seated properly into dummy
- ☒ 18. Head Angle
☒ N/A, neither the pelvis nor the abdomen were adjusted.
- ☒ 18.1 Head still level (Go to 19)
- ☐ 18.2 Head level adjusted
- ☐ Head Level Achieved. (Check all that apply)
☐ Head leveled using the adjustable seat back
☐ Head leveled using the neck bracket.
Head Angle _____ degrees
- ☐ Head Level NOT Achieved. (Check all that apply)
☐ Head adjusted using the adjustable seat back
☐ Head adjusted using the neck bracket.
Head Angle _____ degrees
- ☒ 19. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees \pm 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level, adjust the pelvis as closely as possible to the angle range, but keep the head level.
☐ Pelvic angle set to 20.0 degrees \pm 2.5 degrees.
☒ Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.
☒ Record the pelvic angle. 30.5 degrees
- ☒ 20. Check the dummy for contact with the interior after completing adjustments.
☒ No contact.
☐ Dummy in contact with interior.
☐ Seat moved aft _____ mm from the previous position.
☐ Seat moved aft _____ detent positions from the previous position.
- ☒ 21. Verify the transverse instrument platform of the dummy head is level \pm 0.5 degrees. Use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9, S16.3.3.1.10, and S16.3.3.1.11)
☒ Head Level Achieved
Head Angle 0.1 degrees
☐ Head Level NOT Achieved.
Head Angle _____ degrees

☒ 22. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.3.1.12)

☐ N/A Bench Seat

☒ N/A Seat already at full forward position.

☐ Clearance unchanged. No adjustments required.

☐ Additional clearance available

☐ Seat moved Forward mm from the previous position.

☐ Seat moved Forward detent positions from the previous position.

☐ Seat moved Forward, Full Forward position reached.

☒ 23. Passenger foot positioning. (Indicate final position achieved) (S16.3.3.2)

☐ 23.1 Place feet flat on the toe board; OR

☒ 23.2 If the feet cannot be placed flat on the toe board, set the feet perpendicular to the lower leg, and rest the heel as far forward on the floor pan as possible; OR

☐ 23.3 If the heels do not touch the floor pan, set the legs to vertical and set the feet parallel to the floor pan.

☒ 24. Passenger arm/hand positioning. (S16.3.3.3)

☒ 24.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

☒ 24.2 Place the palms of the dummy in contact with the outer part of the thighs (S16.3.3.3.2)

☒ 24.3 Place the little fingers in contact with the seat cushion. (S16.3.3.3.3)

☒ 25. Adjustable head restraints

☐ N/A, there is no head restraint adjustment

☐ 25.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 26.

☐ 25.2 Adjust each head restraint vertically so that the horizontal plane determined in item 3 of Data Sheet 14 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

☒ 25.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)

☐ N/A midpoint position attained in previous step

☒ Headrest set at nearest detent below the head CG

☐ 25.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

☒ 26. Manual belt adjustment (for tests conducted with a belted dummy) S16.3.5

☒ N/A, **Unbelted test**

__26.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female.

This information will be supplied by the COTR.

Manufacturer's specified position _____

Actual Position _____

__26.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

__26.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

__26.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne Gahl

Date: 8/27/04

**DUMMY POSITIONING PROCEDURES
FOR REAR PASSENGER TEST DUMMY CONFORMING TO SUBPART O OF PART 572**

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C40510
Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	<input checked="" type="checkbox"/> 32 to 40 kmph	<input type="checkbox"/> 0 to 48 kmph	<input type="checkbox"/> 0 to 56 kmph
DRIVER DUMMY:	<input checked="" type="checkbox"/> 5 TH female		<input type="checkbox"/> 50 th Male
PASSENGER DUMMY:	<input checked="" type="checkbox"/> 5 TH female		<input checked="" type="checkbox"/> 5th Center Rear

- ☒ 1. If the seat is a bench seat for which there are no independent adjustments that can be made, Go to step 7.
- ☐ 2. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment position. (S16.2.10.1)
☐ N/A – No lumbar adjustment
- ☐ 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
☐ N/A – No additional support adjustment
- ☐ 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
☐ N/A – No independent fore-aft seat cushion adjustment
- ☐ 5. If the seat and/or seat cushion height is adjustable, put the seat in the full down height position. (S16.3.3.1.1)
☐ N/A – No seat height adjustment
- ☐ 6. Using only the controls that move the seat in the fore-aft direction, place the seat in the rearmost position. (S16.3.3.1.8)
- ☒ 7. Fully recline the seat back. (S16.3.3.1.2)
☒ N/A seat back not adjustable.
- ☒ 8. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.3.1.2)
- ☒ 9. Position the dummy in the seat such that the midsagittal plane is vertical and coincides with the vertical longitudinal plane that passes through the SgRP and is parallel to the longitudinal centerline of the vehicle and the upper torso rests against the seat back.
- ☒ 10. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.3.1.5)
- ☒ 11. Set the angle between the legs and the thighs to 120 degrees. (S16.3.3.1.6)

- X 12. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Not Applicable Due To Center Tunnel Geometry
Record Knee Separation 266mm (FINAL)
- X 13. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.3.1.6)
X Pelvis contacted seat back.
 Calves contacted seat cushion.
- X 14. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side-to-side three times. (S16.3.3.1.7)
- X 15. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.3.1.8)
- X 16. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, adjust the head as closely as possible to the ± 0.5 degree range. (S16.3.3.1.9 and S16.3.3.1.10)
(Check All That Apply)
X Seat back not adjustable
 Seat back not independent of driver side seat back
X Head Level Achieved. (Check all that apply)
 Head leveled using the adjustable seat back
 Head leveled using the neck bracket.
Head Angle 0.1 degrees
 Head Level NOT Achieved. (Check all that apply)
 Head adjusted using the adjustable seat back
 Head adjusted using the neck bracket.
Head Angle _____ degrees
- X 17. Verify the pelvis is not interfering with the seat bight. (S16.3.3.1.9)
X No interference
 Pelvis moved forward the minimum amount so that it is not caught in the seat bight.
- X 18. Verify the dummy abdomen is properly installed. (S16.3.3.1.9)
X Abdomen still seated properly into dummy
 Abdomen was adjusted because it was not seated properly into dummy
- X 19. Head Angle
X N/A, neither the pelvis nor the abdomen were adjusted.
 19.1 Head still level (Go to 20)
 19.2 Head level adjusted
 Head Level Achieved. (Check all that apply)
 Head leveled using the adjustable seat back
 Head leveled using the neck bracket.
Head Angle _____ degrees
 Head Level NOT Achieved. (Check all that apply)
 Head adjusted using the adjustable seat back
 Head adjusted using the neck bracket.
Head Angle _____ degrees

X 20. Measure the pelvic angle using the pelvic angle gage TE-2504.

X Record the pelvic angle. 20.2 degrees

X 21. Verify the transverse instrument platform of the dummy head is level +/- 0.5 degrees. Use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9, S16.3.3.1.10, and S16.3.3.1.11)

X Head Level Achieved

Head Angle 0.1 degrees

 Head Level NOT Achieved.

Head Angle degrees

X 22. Passenger foot positioning. Check only one of the following that applies: (Indicate final position achieved) (S16.3.3.2)

 Outboard seating position

 22.1 Keeping the right thigh and leg in a vertical plane and the left thigh and leg in a vertical plane, place the feet flat on the floorpan and beneath the front seat as far as possible without front seat interference. If necessary, the distance between the knees can be changed in order to place the feet beneath the seat. Record new distance between the outboard knee clevis flange surfaces if knees have been repositioned. measured distance (mm)

X Center seating position

X 22. Keeping the left thigh and leg in a vertical plane, place the left foot flat on the floorpan on the left side of the transmission tunnel (if present). Keeping the right thigh and leg in a vertical plane, place the right foot flat on the floorpan on the right side of the transmission tunnel. If necessary, the distance between the knees can be changed in order to place the feet flat on the floor. If possible, the knees should remain as close to the distance as measured in #11 above. Record new distance between the outboard knee clevis flange surfaces if knees have been repositioned.

266 measured distance (mm)

X 23. Passenger arm/hand positioning. (S16.3.3.3)

X 23.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

X 23.2 Place the palms of the dummy in contact with the outer part of the thighs (S16.3.3.3.2)

X 23.3 Place the little fingers in contact with the seat cushion. (S16.3.3.3.3)

X 24. Adjustable head restraints

X N/A, there is no head restraint adjustment

 24.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 25.

 24.2 Adjust each head restraint vertically so that the horizontal plane through the vertical center of the head restraint is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

___N/A midpoint position attained in previous step

X25. Manual belt adjustment (for tests conducted with a belted dummy) S16.3.5

Manufacturer's specified position No D-ring

121

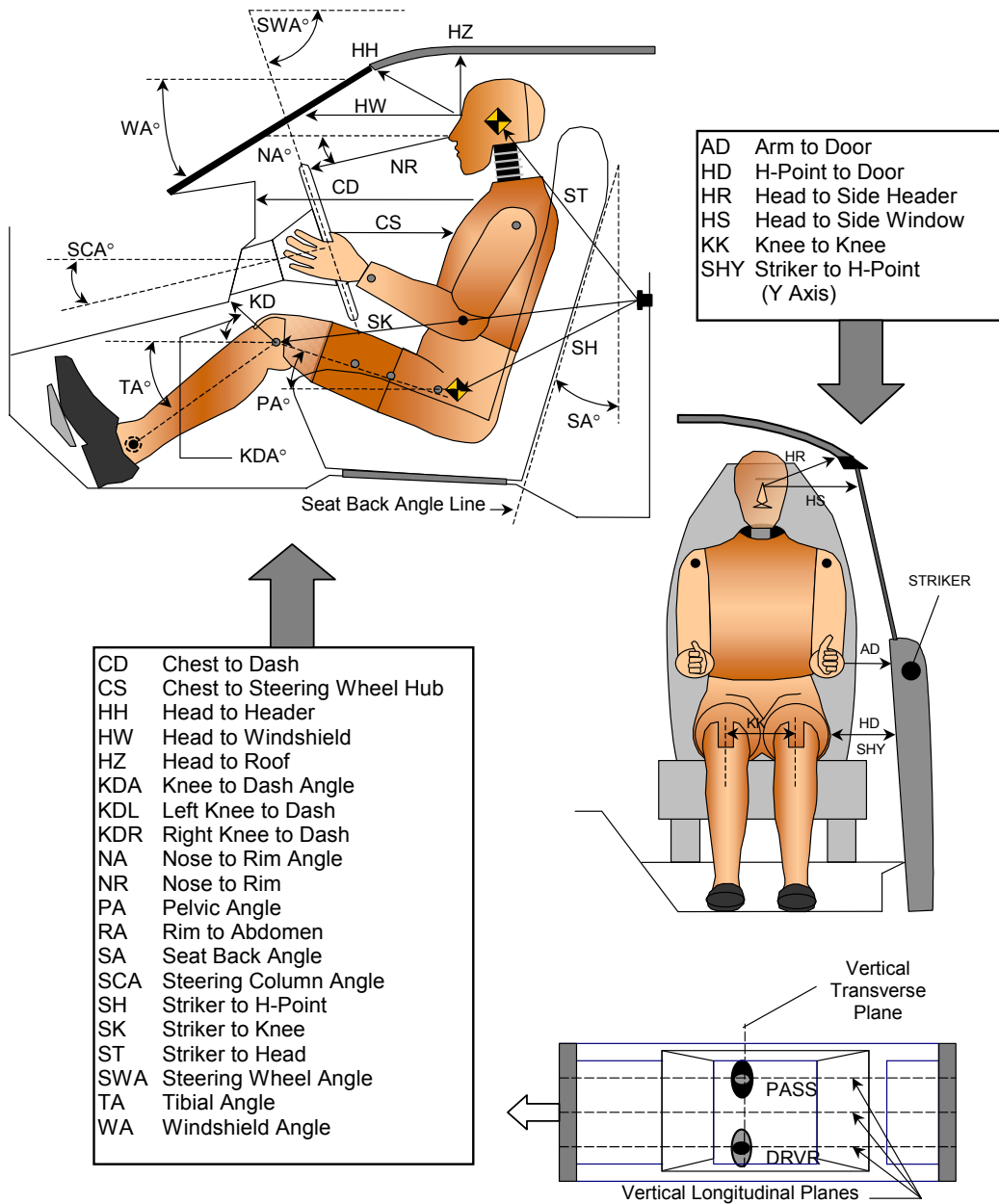
DATA SHEET 35

DUMMY MEASUREMENTS

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C40510
 Test Date: 8/27/04

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET 35
DUMMY MEASUREMENTS

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C40510
Test Date: 8/27/04

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver SN 505		Passenger SN 506	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		31.1		
SWA	Steering Wheel Angle		66.4		
SCA	Steering Column Angle		23.8		
SA	Seat Back Angle (On headrest post)		0.3		2.7
HZ	Head to Roof (Z)	208		256	
HH	Head to Header	266		304	
HW	Head to Windshield	533		591	
HR	Head to Side Header (Y)	260		282	
NR	Nose to Rim	257	0.1		
CD	Chest to Dash	444		435	
CS	Chest to Steering Hub	186			
RA	Rim to Abdomen	84			
KDL	Left Knee to Dash	66	41.3	115	
KDR	Right Knee to Dash	108		110	33.7
PA	Pelvic Angle		26.2		30.5
TA	Tibia Angle		45.8		43.3
KK	Knee to Knee (Y)	279		206	
SK	Striker to Knee	681	94.7	682	94.5
ST	Striker to Head	482	26.6	459	27.1
SH	Striker to H-Point	382	111.2	397	113.4
SHY	Striker to H-Point (Y)	278		260	
HS	Head to Side Window	348		349	
HD	H-Point to Door (Y)	221		235	
AD	Arm to Door (Y)	167		158	
AA	Ankle to Ankle	282		179	

DATA SHEET 35 SUPPLIMENTAL

RIGHT REAR PASSENGER DUMMY MEASUREMENTS

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C40510
 Test Date: 8/27/04

TEST DUMMY POSITION MEASUREMENTS (S/N 516)

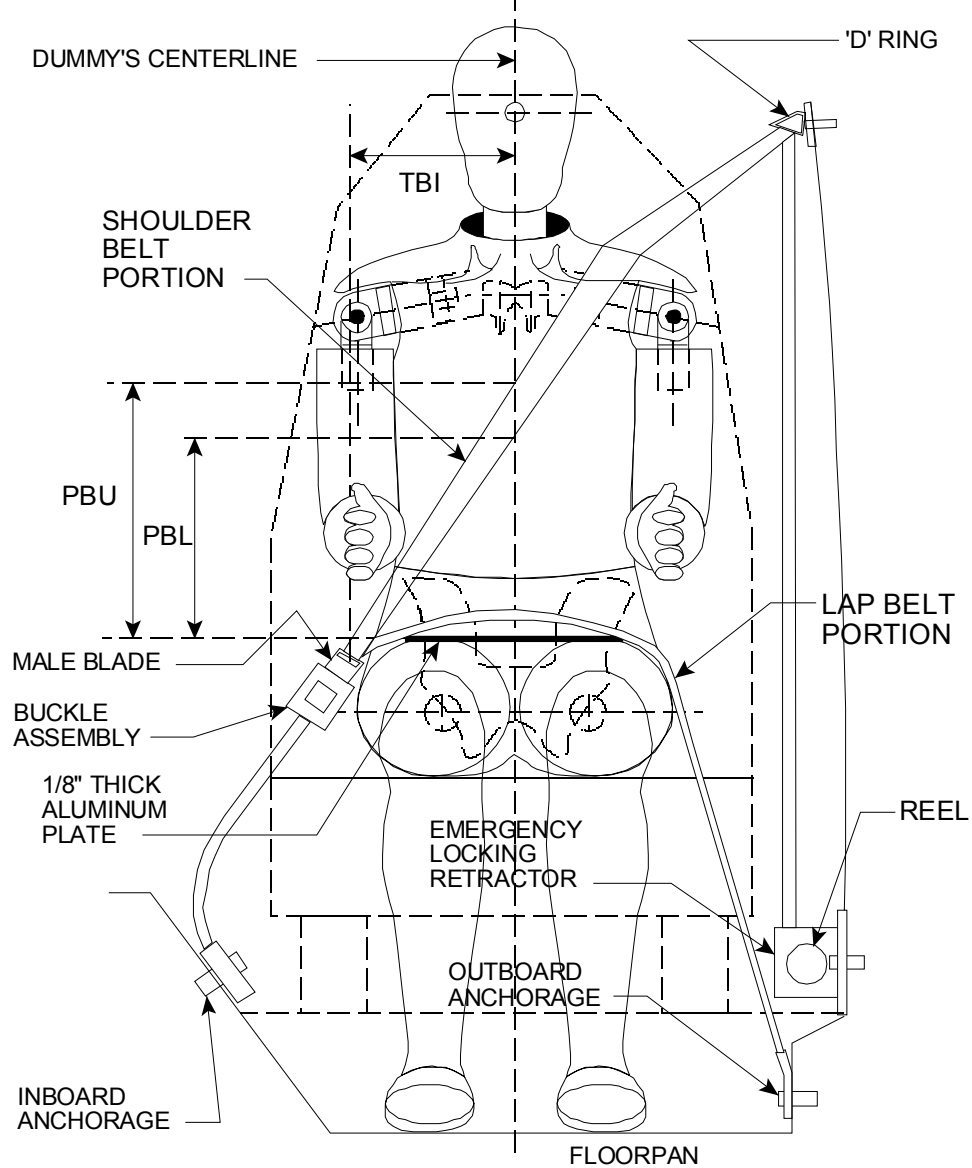
Code	Measurement Description	Units	Measurement
SA	Seat Back Angle	degrees	24.7
HR	Head to Side Header (Y)	mm	517
HS	Head to Side Window	mm	673
AD	Arm to Door	mm	490
HD	H-Point to Door (Y)	mm	563
HB	Head to Seatback	mm	756
NB	Neck to Seatback	mm	819
CB	Chest to Seatback	mm	713
KB	Knee to Seatback	mm	403
PA	Pelvic Angle	degrees	20.2
TA	Tibia Angle	degrees	56.8
KK	Knee to Knee (Y)	mm	266
AA	Ankle to Ankle	mm	291

Center Rear Post Test Seat Back Angle = 31.8 degrees

Center Rear Passenger Dummy Target Information:

Horizontal distance from camera to dummy reference targets: 656 mm
 Horizontal distance from camera to vehicle reference targets: 1416 mm
 Distance between 1" reference targets: 75 mm
 Reference targets were placed on inch tape for continuous reference.

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger	Rear Passenger
PBU - Top surface of reference to belt upper edge	mm	N/A	N/A	294
PBL - To surface of reference to belt lower edge	mm	N/A	N/A	202

DATA SHEET 36

CRASH TEST

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u> </u> 0 to 48 kmph	<u> </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 TH female		<u> </u> 50 th Male
PASSENGER DUMMY:	<u>X</u> 5 TH female		<u>X</u> 5th Center Rear

- ☒ 1. Vehicle underbody painted
- ☒ 2. The speed measuring devices are in place and functioning.
- ☒ 3. The speed measuring devices are 1.0 m from the barrier (spec. 1.5m) and 30 cm from the barrier (spec. is 30 cm)
- ☒ 4. Convertible top is in the closed position.
- ☒ N/A, not a convertible
- ☒ 5. Instrumentation and wires are placed so the motion of the dummies during impact is not affected.
- ☒ 6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information.


<u>210</u> kpa front left tire	<u>210</u> kpa specified on tire placard or in owner information
<u>210</u> kpa front right tire	<u>210</u> kpa specified on tire placard or in owner information
<u>210</u> kpa rear left tire	<u>210</u> kpa specified on tire placard or in owner information
<u>210</u> kpa rear right tire	<u>210</u> kpa specified on tire placard or in owner information

- ☒ 7. Time zero contacts on barrier in place.
- ☒ 8. Pre test zero and shunt calibration adjustments performed and recorded
- ☒ 9. Dummy temperature meets requirements of section 12.2 of the test procedure.
- ☒ 10. Vehicle hood closed and latched
- ☒ 11. Transmission placed in neutral
- ☒ 12. Parking brake off
- ☒ 13. Ignition in the ON position
- ☒ 14. Doors closed and latched but not locked
- ☒ 15. Posttest zero and shunt calibration checks performed and recorded
- ☒ 16. Actual test speed 39.8 kmph
- ☒ 17. Vehicle rebound from the barrier 75 cm
- ☒ 18. Describe whether the doors open after the test and what method is used to open the doors.
 - ☒ Left Front Door: Door remained closed and latched; Door opened without tools
 - ☒ Right Front Door: Door remained closed and latched; Door opened without tools
 - ☒ Left Rear Door: Door remained closed and latched; Door opened without tools
 - ☒ Right Rear Door: Door remained closed and latched; Door opened without tools

- ☒ 19. Describe the contact points of the dummy with the interior of the vehicle.
- ☒ Driver Dummy: Head to Air Bag and Visor; Chest and Abdomen to Air Bag; Knees to Knee Bolster
 - ☒ Passenger Dummy: Head to Windshield, Dash and A-pillar; Knees to Glove Box
 - ☒ Center Rear Passenger Dummy: Head to Rear Seat Back; Left Knee to Center Console

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 8/27/04

DATA SHEET NO. 38

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	<input checked="" type="checkbox"/> 32 to 40 kmph	<input type="checkbox"/> 0 to 48 kmph	<input type="checkbox"/> 0 to 56 kmph
DRIVER DUMMY:	<input checked="" type="checkbox"/> 5 TH female	<input type="checkbox"/> 50 th Male	
PASSENGER DUMMY:	<input checked="" type="checkbox"/> 5 TH female	<input checked="" type="checkbox"/> 5th Center Rear	

Vehicle Year/Make/Model/Body Style:	2004 Hyundai Elantra 4 Door
VIN:	KMHDN46D64U733703
Wheelbase:	2610 mm
Build Date:	8/19/03
Vehicle Size Category:	3
Test Weight:	1484.6 kg
Front Overhang:	930 mm
Overall Width:	1731 mm
Overall Length Center:	4495 mm

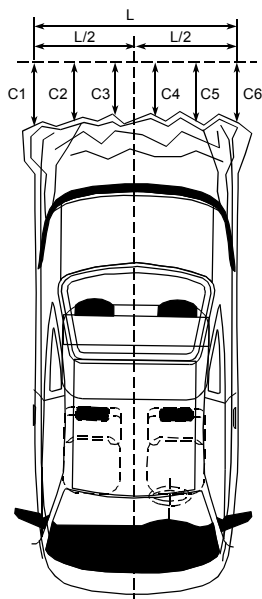
Accelerometer Data	
Location:	As per measurements on Data Sheet 31
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	39.8 kmph
Time of Separation:	92.9 ms
Velocity Change:	45.0 kmph

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Midpoint of Damage: Vehicle Longitudinal Centerline
 Damage Region Length (mm): 1537
 Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4297	4131	166
C2	Crush zone 2 at left side	mm	4413	4135	278
C3	Crush zone 3 at left side	mm	4470	4117	353
C4	Crush zone 4 at right side	mm	4470	4184	286
C5	Crush zone 5 at right side	mm	4413	4157	256
C6	Crush zone 6 at right side	mm	4297	4125	172



REMARKS:

I certify that I have read and performed each instruction.

Signature: Clark S. S. S.

Date: 8/27/04

DATA SHEET 39
WINDSHIELD MOUNTING (FMVSS 212)

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Clark Subrt

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	X 32 to 40 kmph	0 to 48 kmph	0 to 56 kmph
DRIVER DUMMY:	X 5 TH female		50 th Male
PASSENGER DUMMY:	X 5 TH female		X 5th Center Rear

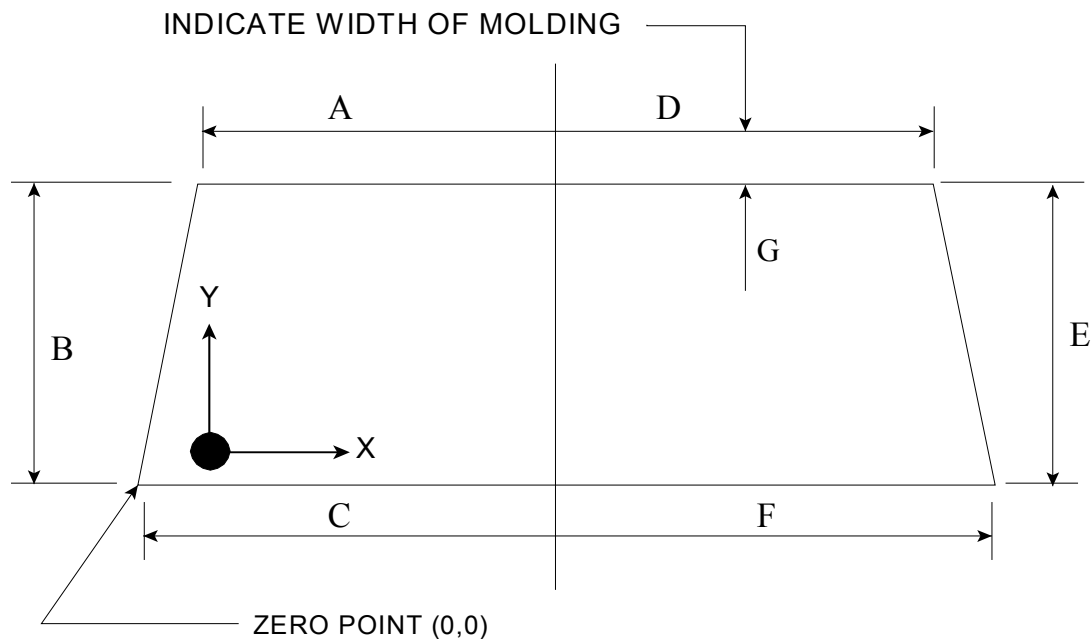
1. Pre-Crash
- ☒ 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.
- Retained with glue
Plastic and Rubber trim
- ☒ 1.2 Mark the longitudinal centerline of the windshield
- ☒ 1.3 Measure pre-crash A, B, and C for the left side and record in the chart below.
- ☒ 1.4 Measure pre-crash C, D, and E for the right side and record in the chart below.
- ☒ 1.5 Measure from the edge of the retainer or molding to the edge of the windshield.
- ☒ Dimension G (mm): 19
2. Post Crash
- ☒ 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?
- ☒ No – Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.
- ☐ Yes, go to 2.2
- ☐ 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.
- ☐ 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.
- ☐ 2.4 Calculate and record the percent retention for the right and left side of the windshield.
- ☐ 2.5 Is total right side percent retention less than 75%?
- ☐ Yes, Fail
- ☐ No, Pass
- ☐ 6. Is total left side percent retention less than 75%?
- ☐ Yes, Fail
- ☐ No, Pass

WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	545	545	100%
	B	776	776	100%
	C	720	720	100%
	Total	2041	2041	100%
Right Side	D	545	545	100%
	E	776	776	100%
	F	720	720	100%
	Total	2041	2041	100%

Indicate area of mounting failure. NONE

FRONT VIEW OF WINDSHIELD



REMARKS:

I certify that I have read and performed each instruction.

Signature: Clark Subit

Date: 8/27/04

DATA SHEET 40 **WINDSHIELD ZONE INTRUSION (FMVSS 219)**

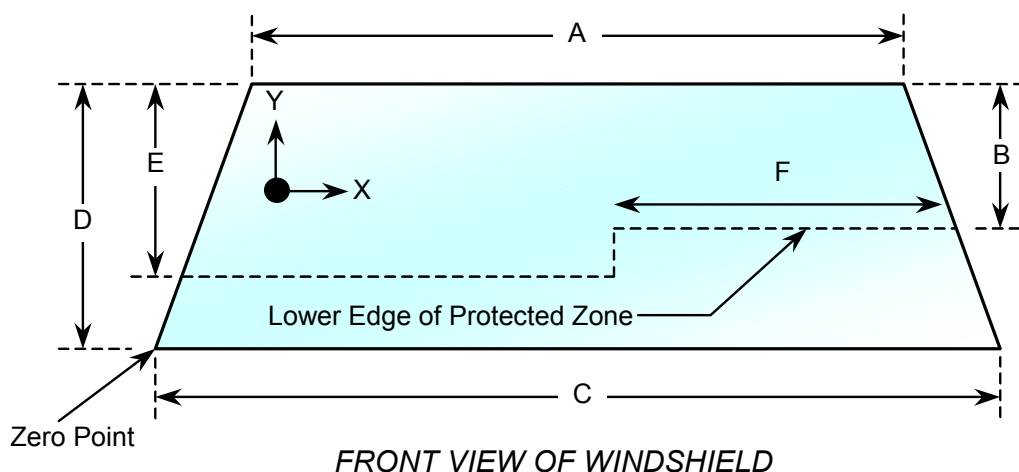
Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Clark Subrt

NHTSA No.: C40510
 Test Date: 8/27/04

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No – Front Occupants Yes – Center Rear Passenger		
TEST SPEED:	<input checked="" type="checkbox"/> 32 to 40 kmph	<input type="checkbox"/> 0 to 48 kmph	<input type="checkbox"/> 0 to 56 kmph
DRIVER DUMMY:	<input checked="" type="checkbox"/> 5 TH female		<input type="checkbox"/> 50 th Male
PASSENGER DUMMY:	<input checked="" type="checkbox"/> 5 TH female		<input checked="" type="checkbox"/> 5th Center Rear

- ☒ 1. Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))
- ☒ 2. Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))
- ☒ 3. From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))
- ☒ 4. Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3
- ☒ 5. After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.



WINDSHIELD DIMENSIONS

Item	Units	Value
A	mm	1090
B	mm	480
C	mm	1440
D	mm	776
E	mm	513
F	mm	649

AREA OF PROTECTED ZONE FAILURES:

- B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

X	Y
NONE	

- C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
NONE	

REMARKS:

I certify that I have read and performed each instruction.

Signature: Clark Subit

Date: 8/27/04

DATA SHEET 41
FUEL SYSTEM INTEGRITY (FMVSS 301)

Test Vehicle: 2004 Hyundai Elantra 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C40510
Test Date: 8/27/04

TYPE OF IMPACT:	25 mph Unbelted Flat Frontal
-----------------	------------------------------

Stoddard Solvent Spillage Measurements

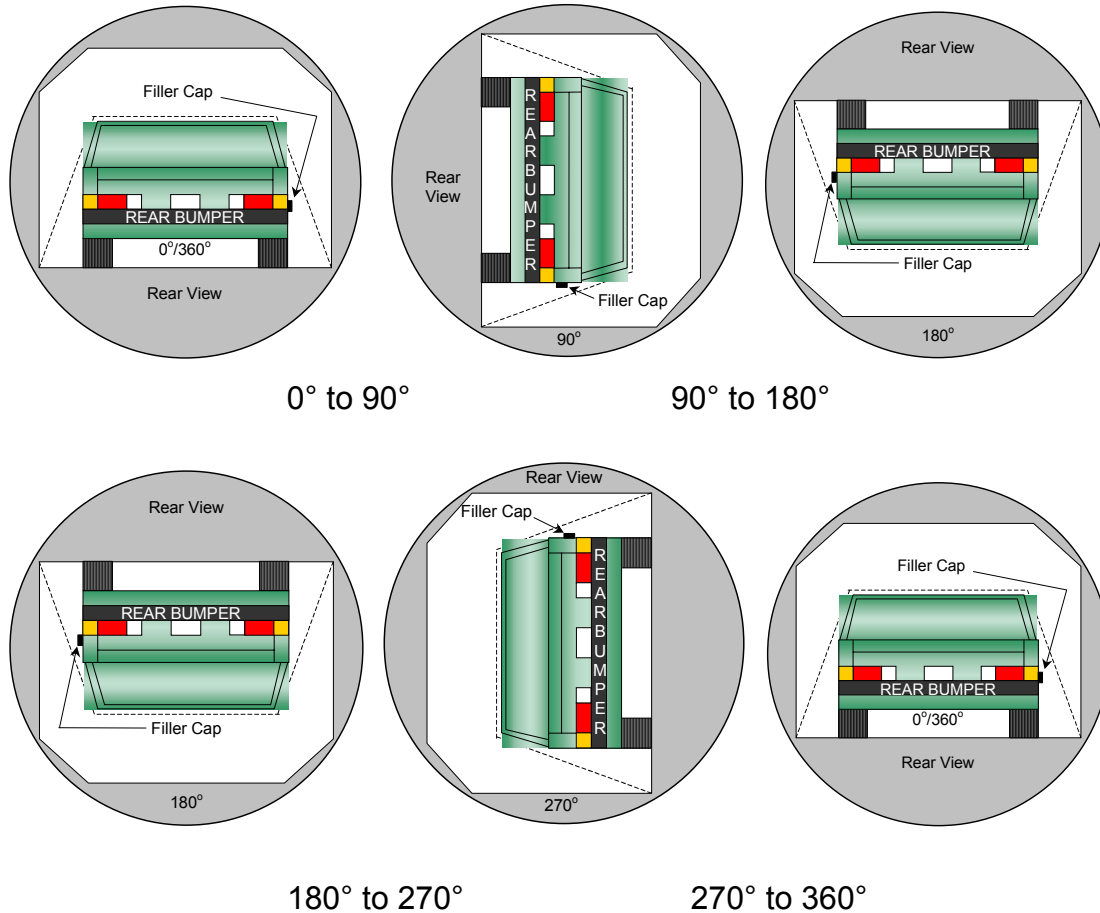
- A. From impact until vehicle motion ceases: 0.0 grams
(Maximum Allowable = 28 grams)
- B. For the 5 minute period after motion ceases: 0.0 grams
(Maximum Allowable = 142 grams)
- C. For the following 25 minutes: 0.0 grams
(Maximum Allowable = 28 grams/minute)
- D. Spillage: None

REMARKS: **The post test FMVSS 301 rollover was not conducted due to the apparent noncompliance.**

DATA SHEET NO. 41
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2004 Hyundai Elantra 4 Door
 Test Program: FMVSS 208 Compliance

NHTSA No.: C40510
 Test Date: 8/27/04



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: **The post test FMVSS 301 rollover was not conducted due to the apparent noncompliance.**

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (grams)
0° to 90°			
90° to 180°			
180° to 270°			
270° to 360°			

APPENDIX A
CRASH TEST DATA

TABLE OF DATA PLOTS

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Figure No. 2.	Driver Head Y Acceleration vs. Time	A-1
Figure No. 3.	Driver Head Z Acceleration vs. Time	A-1
Figure No. 4.	Driver Head Resultant Acceleration vs. Time	A-1
Figure No. 5.	Driver Head X Velocity vs. Time	A-2
Figure No. 6.	Driver Head Y Velocity vs. Time	A-2
Figure No. 7.	Driver Head Z Velocity vs. Time	A-2
Figure No. 8.	Driver Neck Force X vs. Time	A-3
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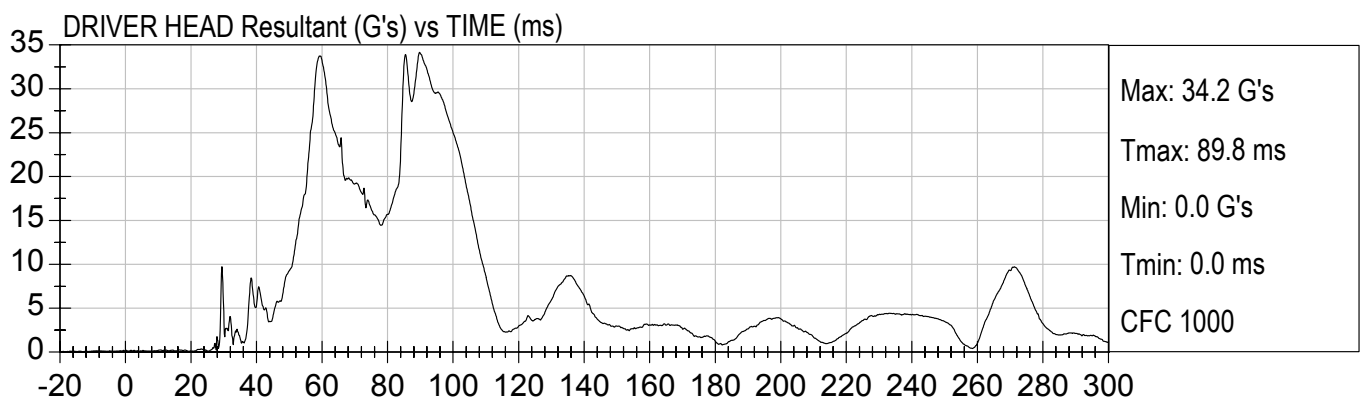
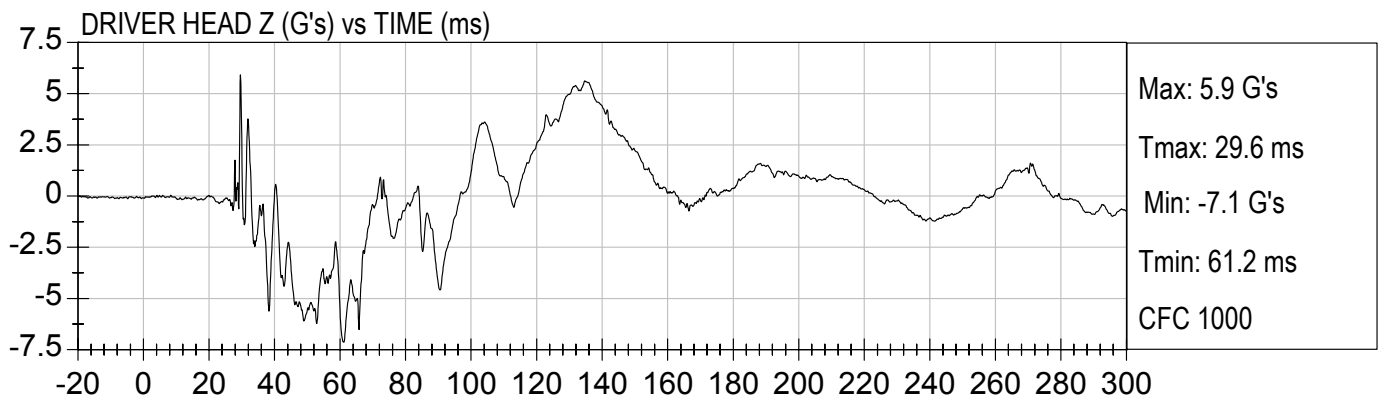
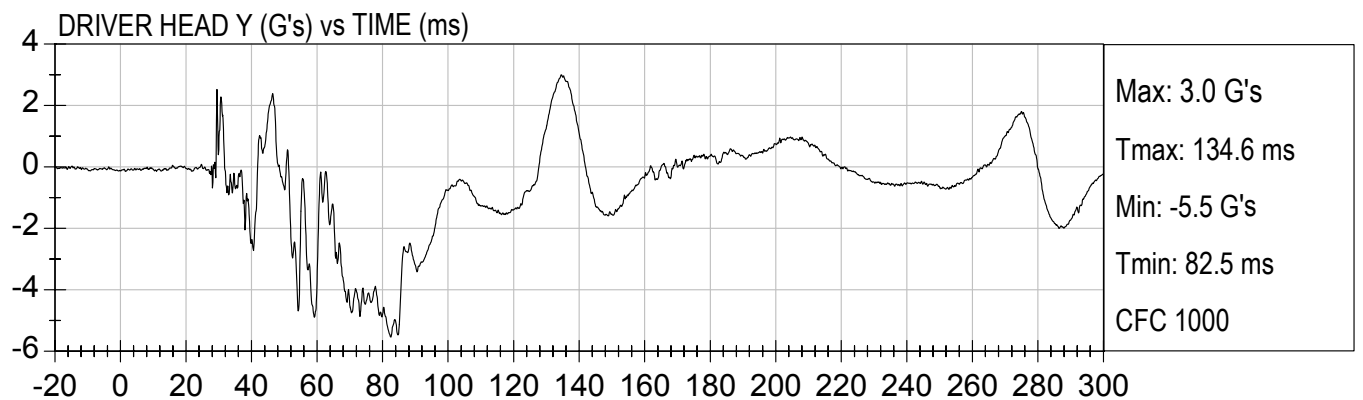
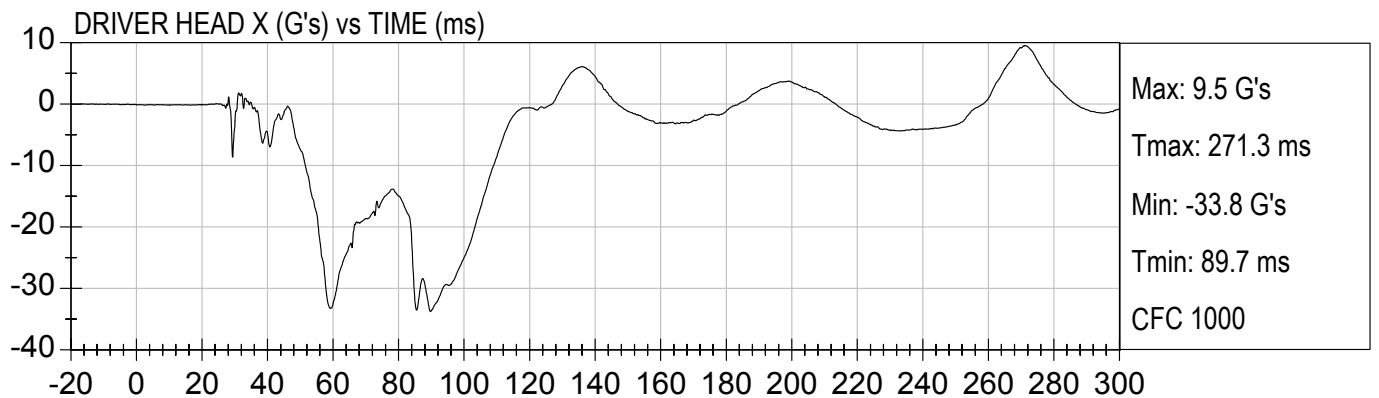
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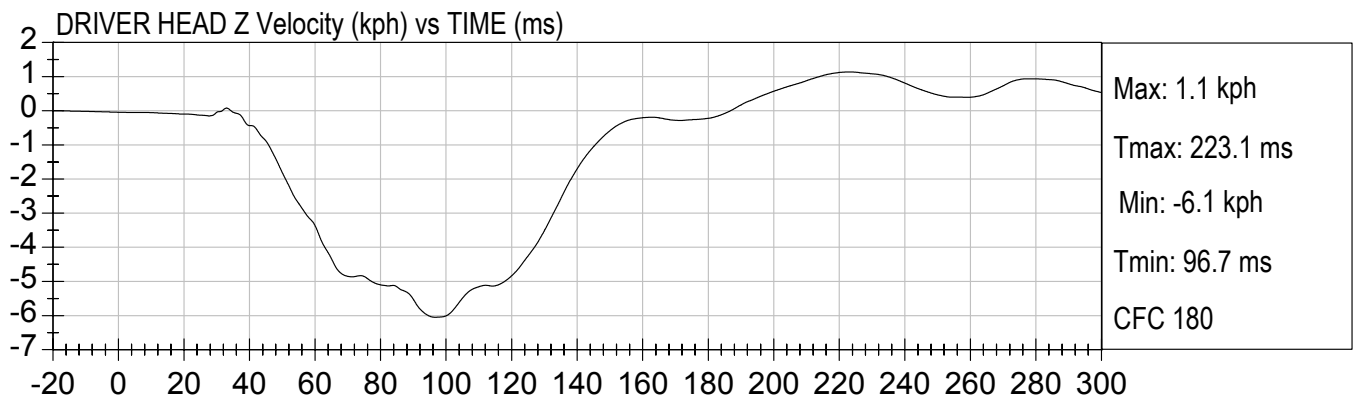
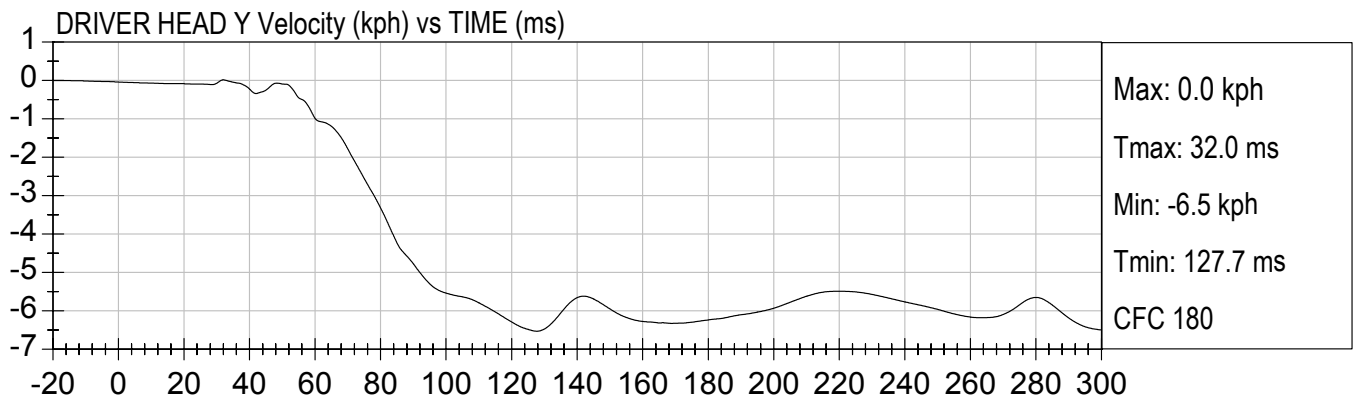
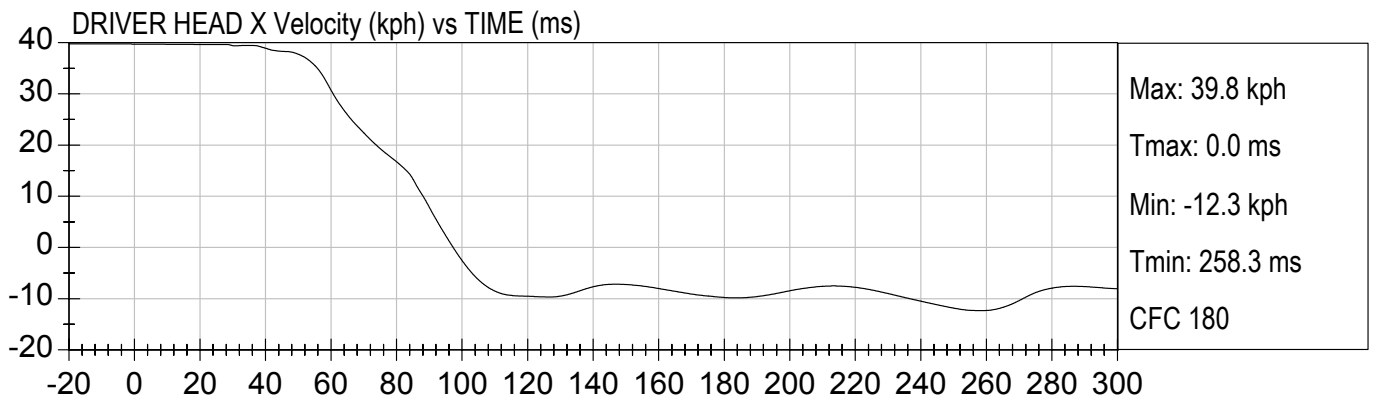
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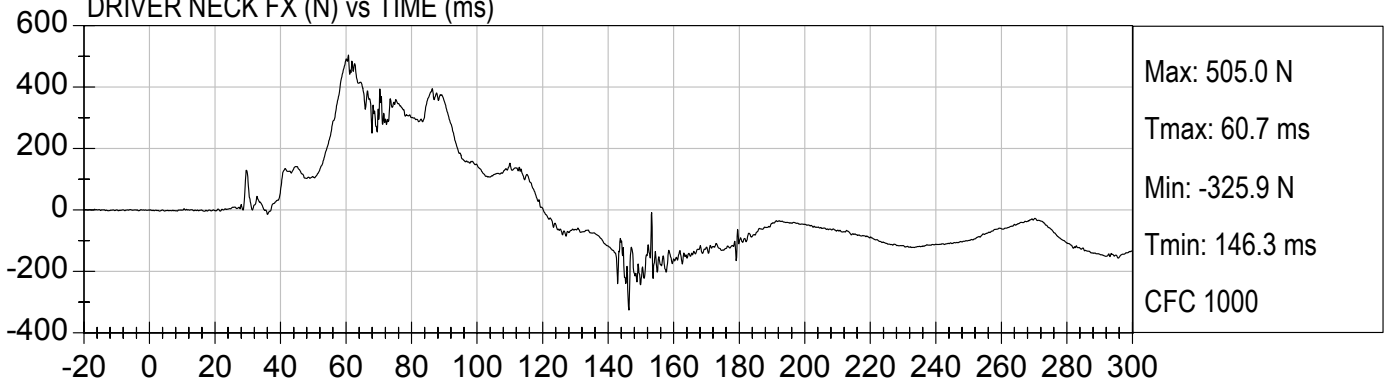
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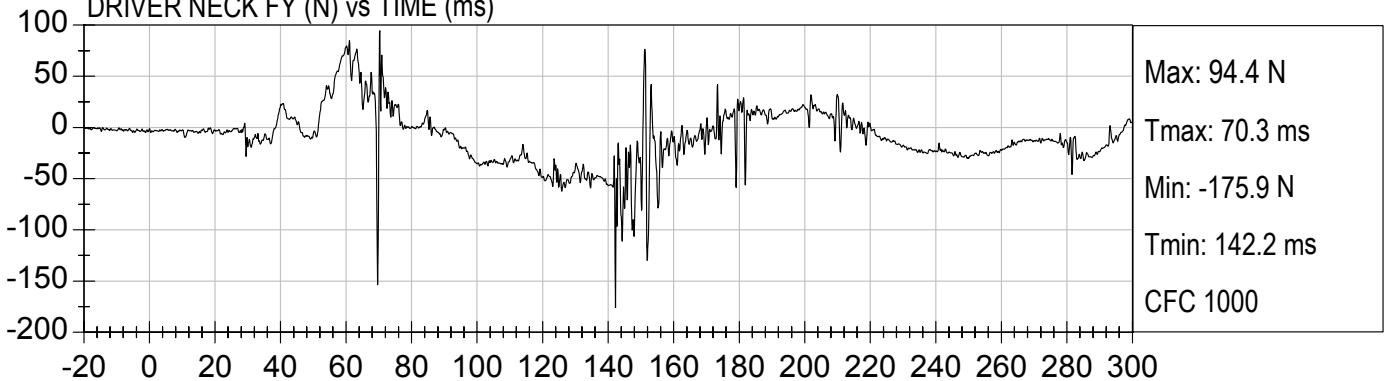




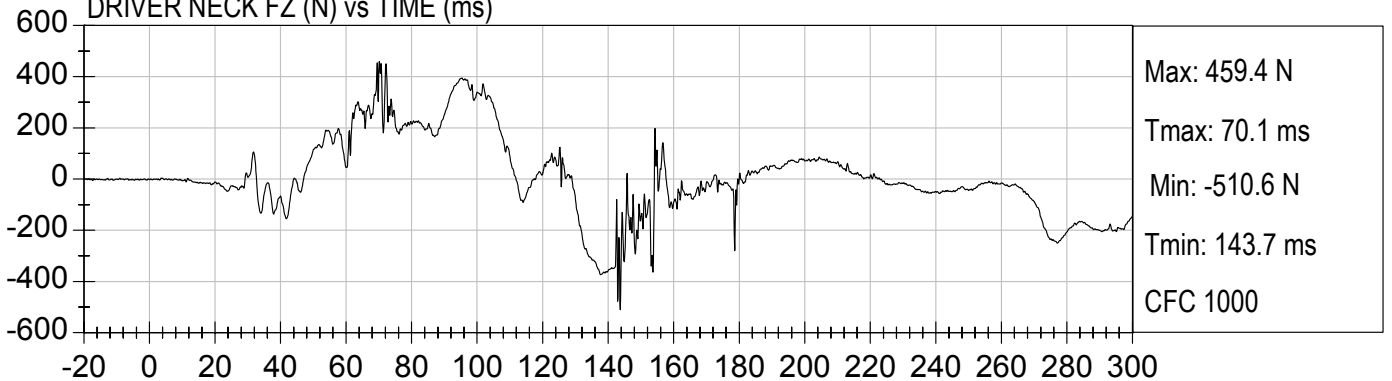
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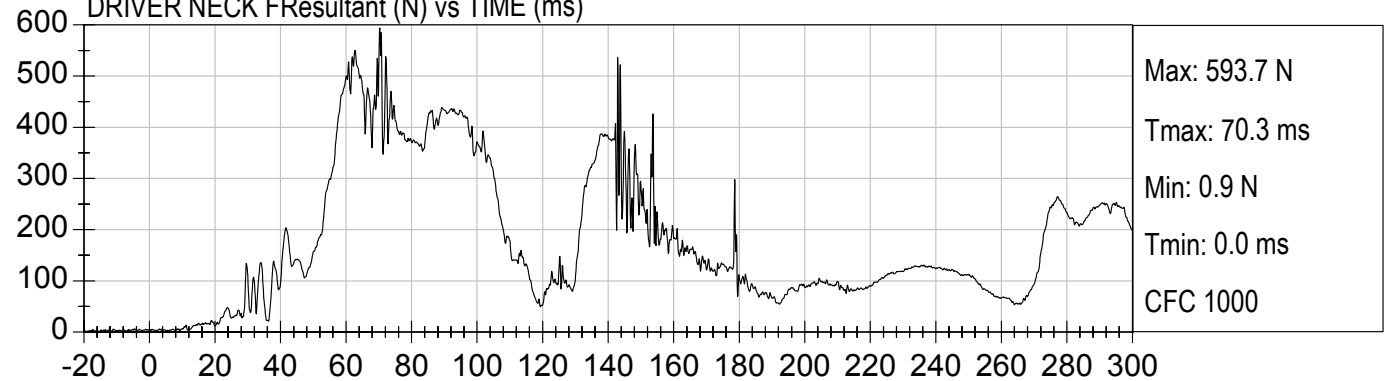
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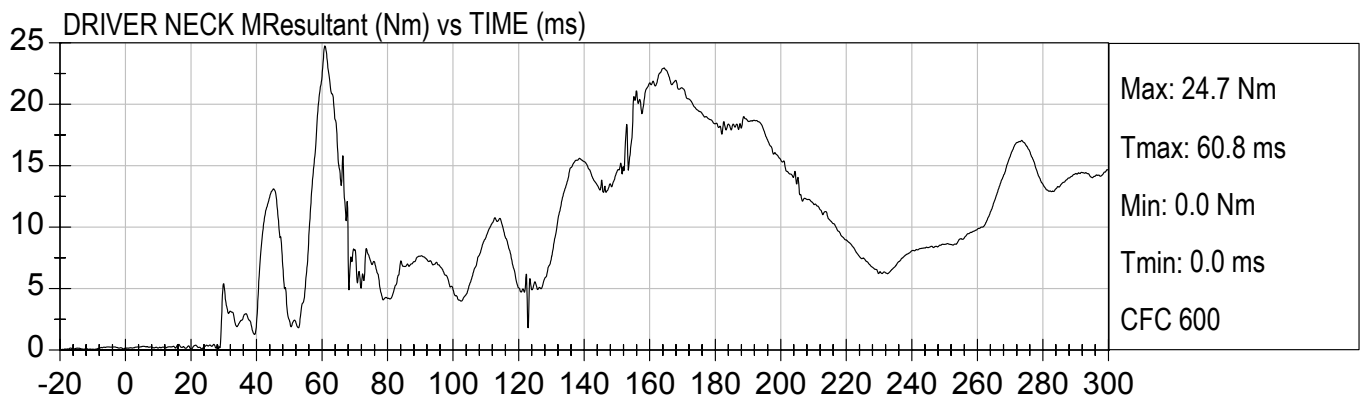
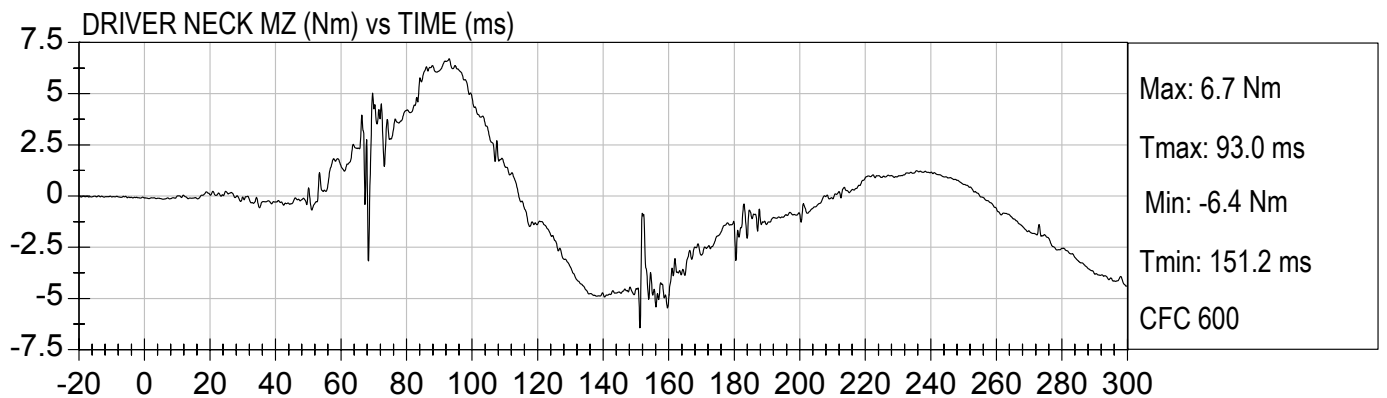
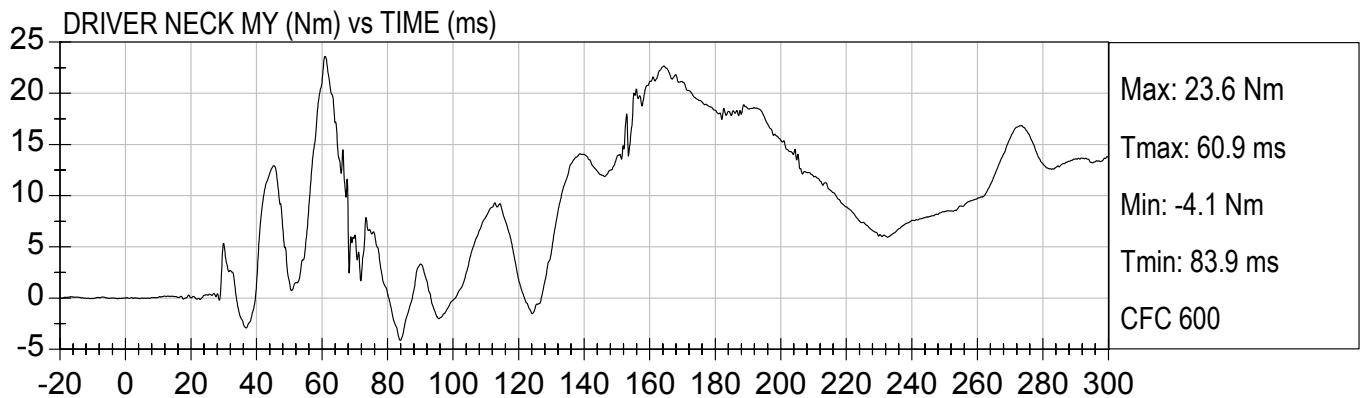
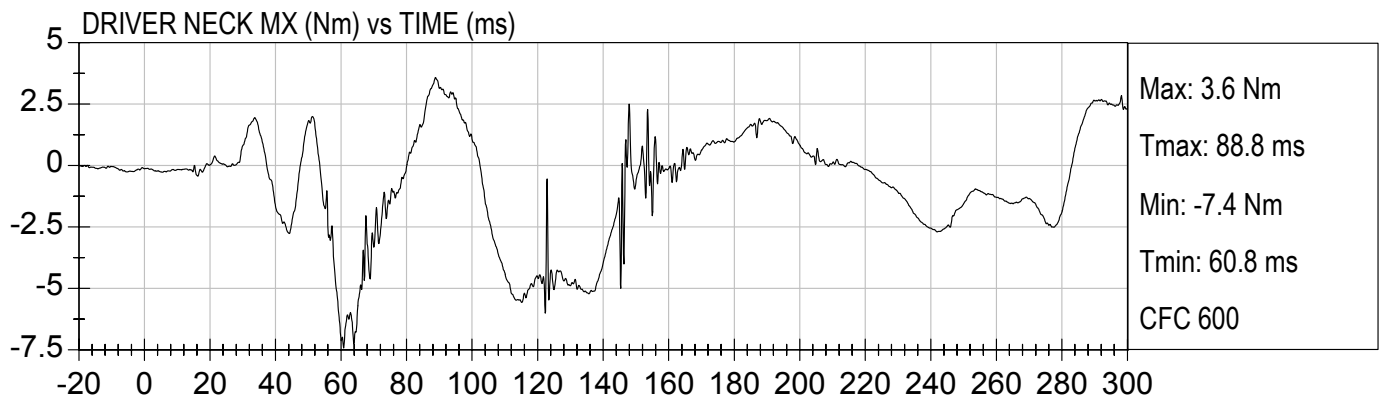


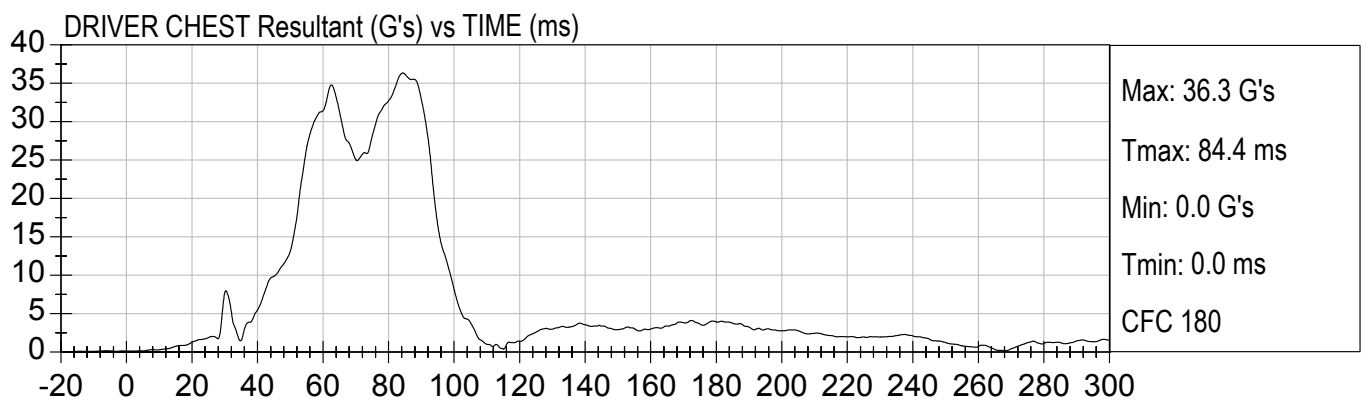
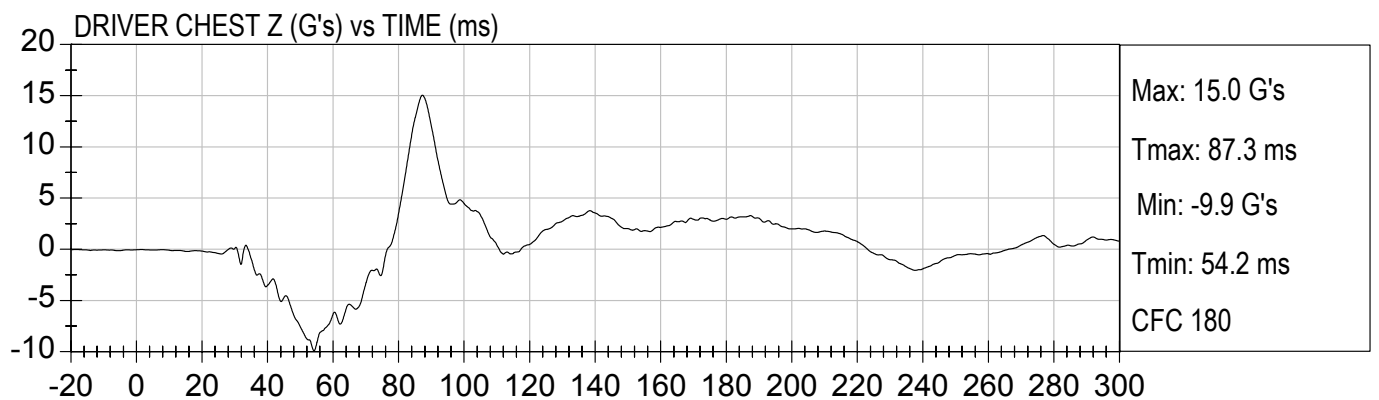
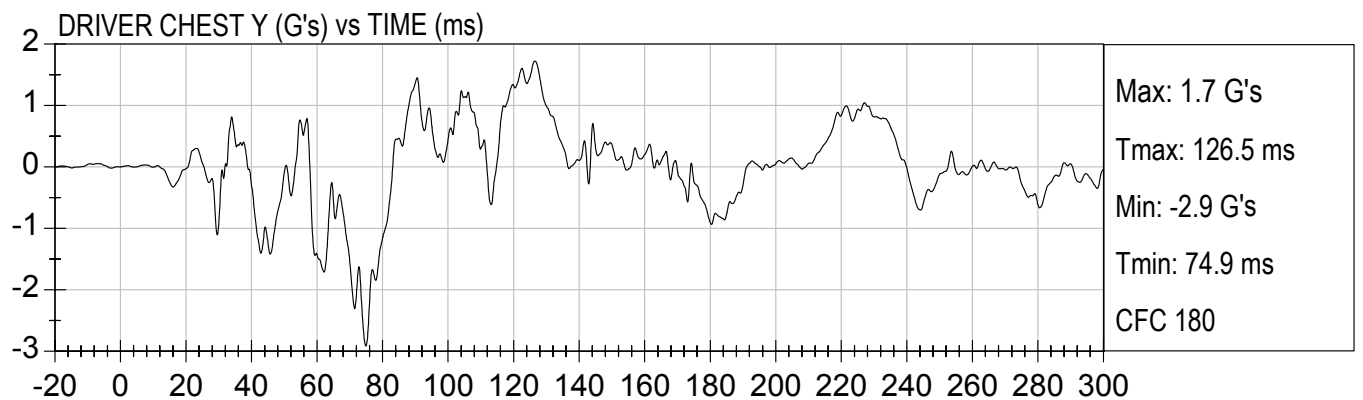
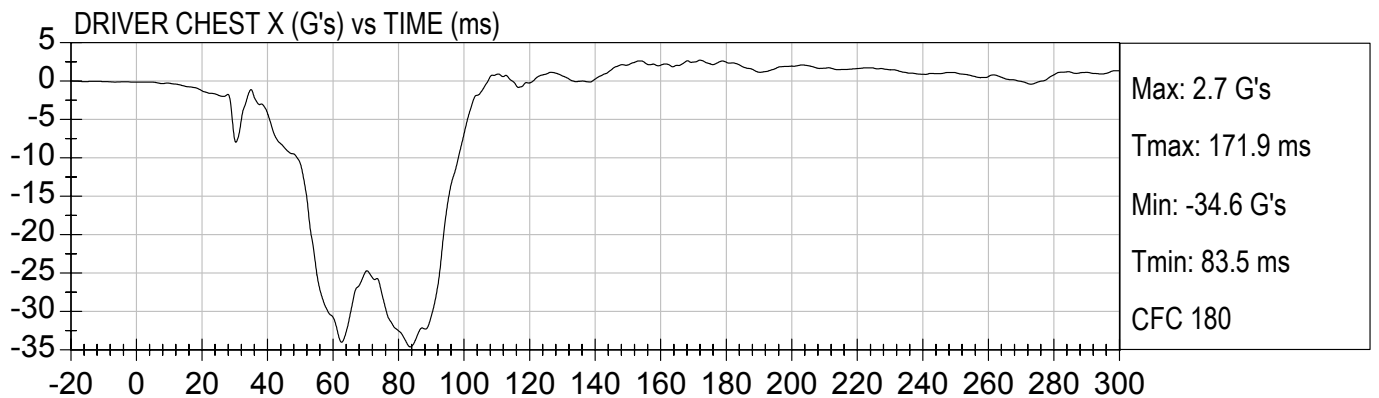
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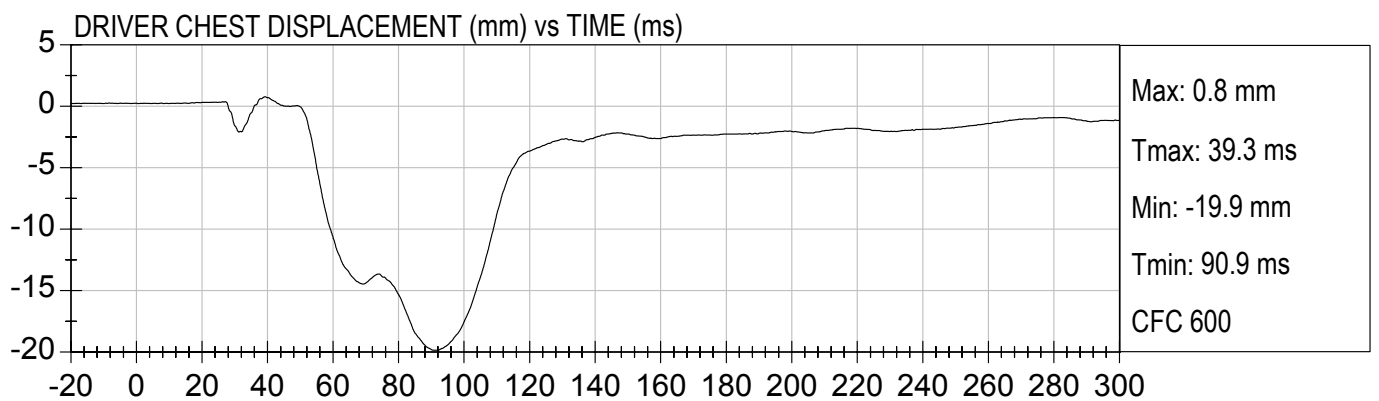
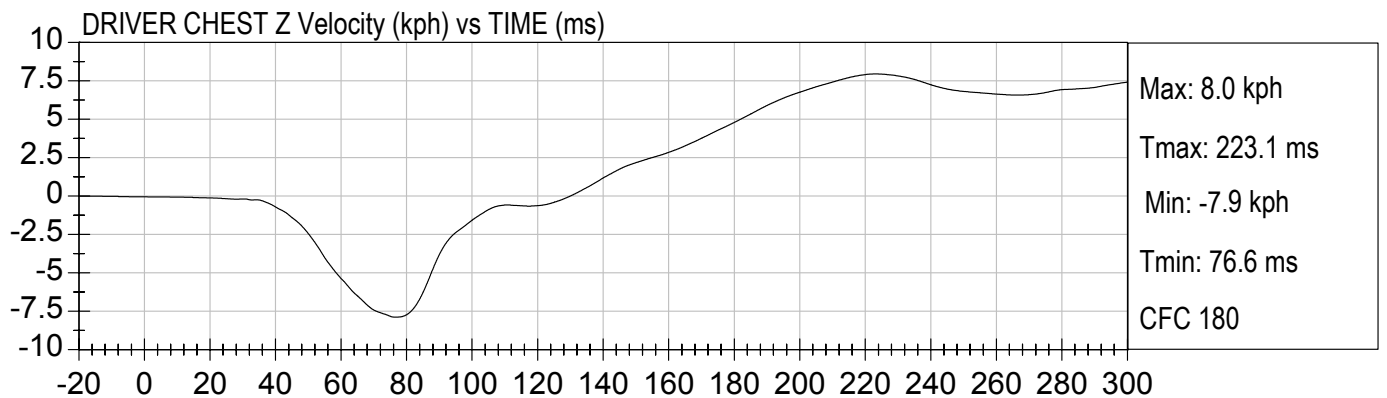
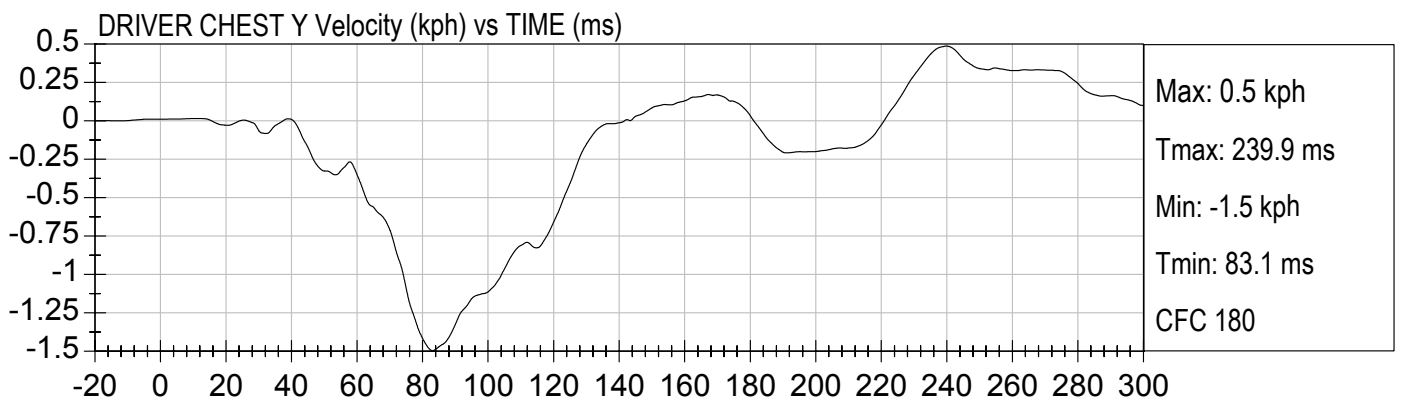
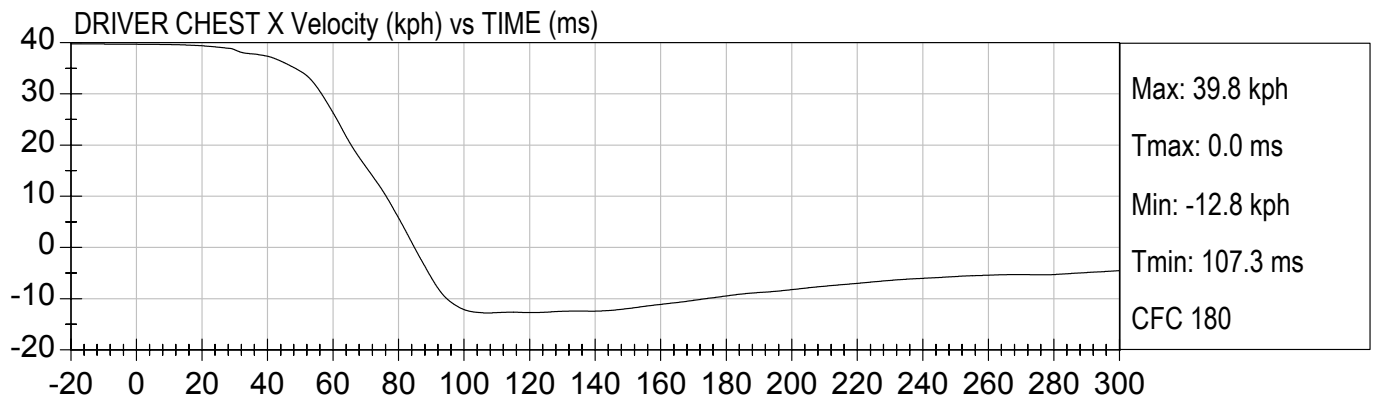


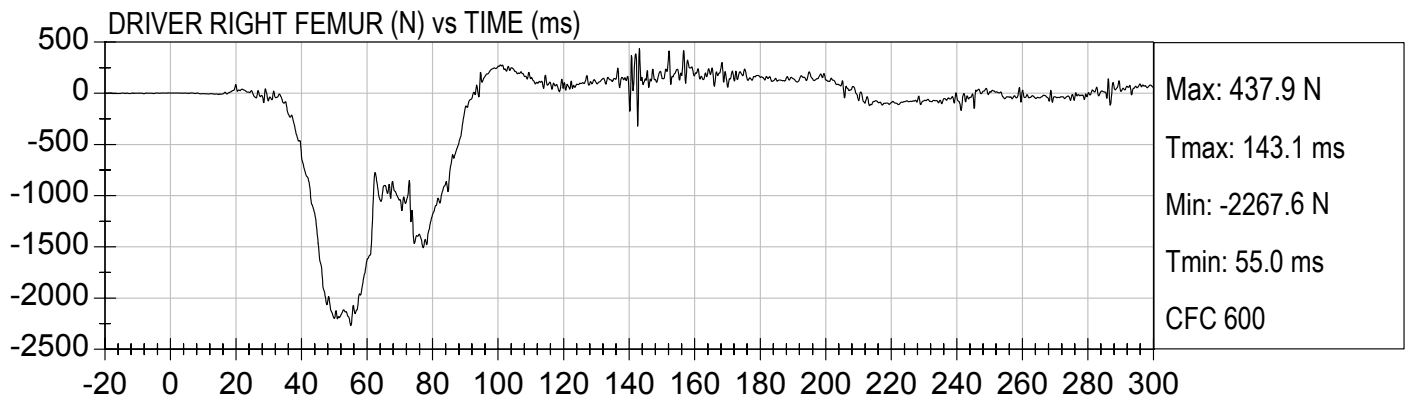
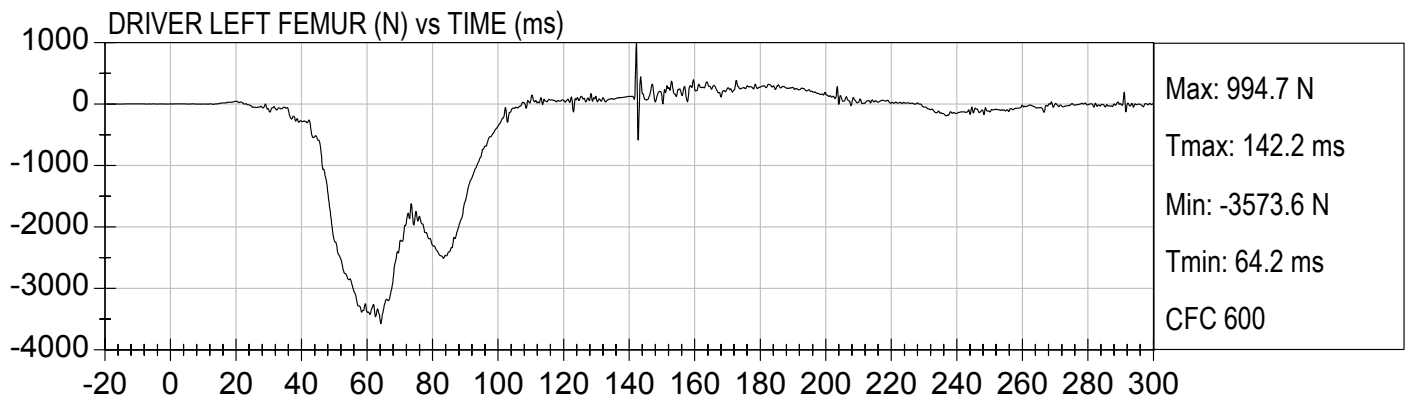
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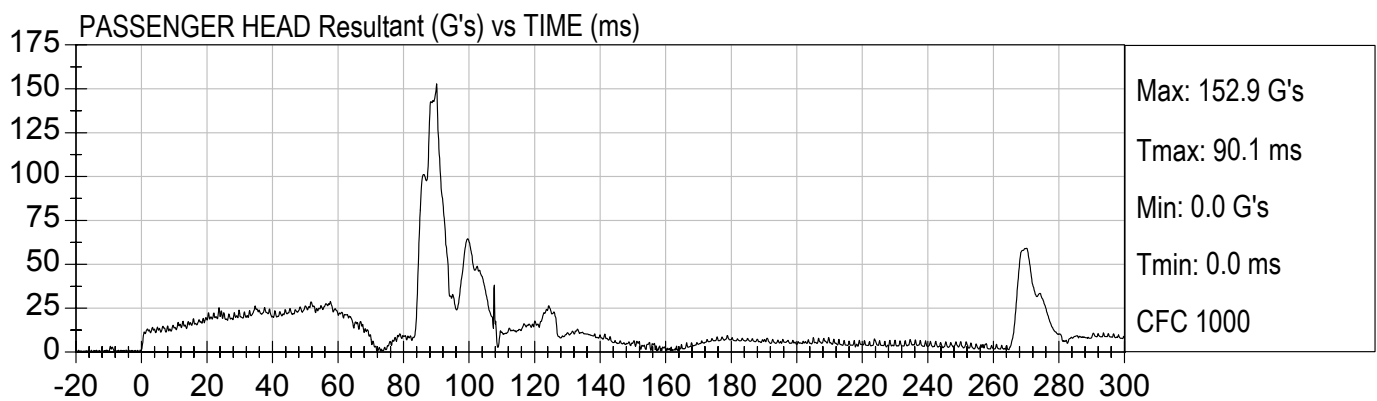
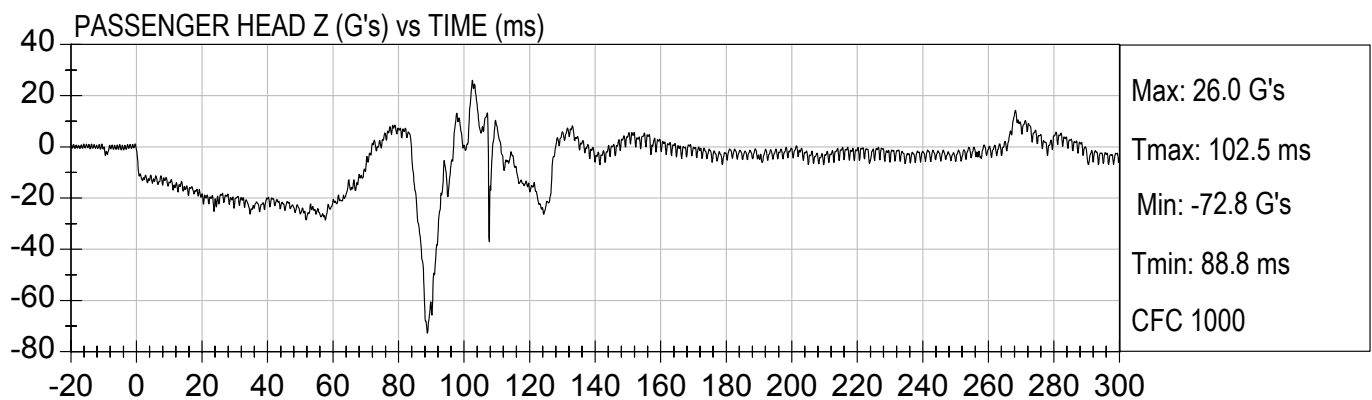
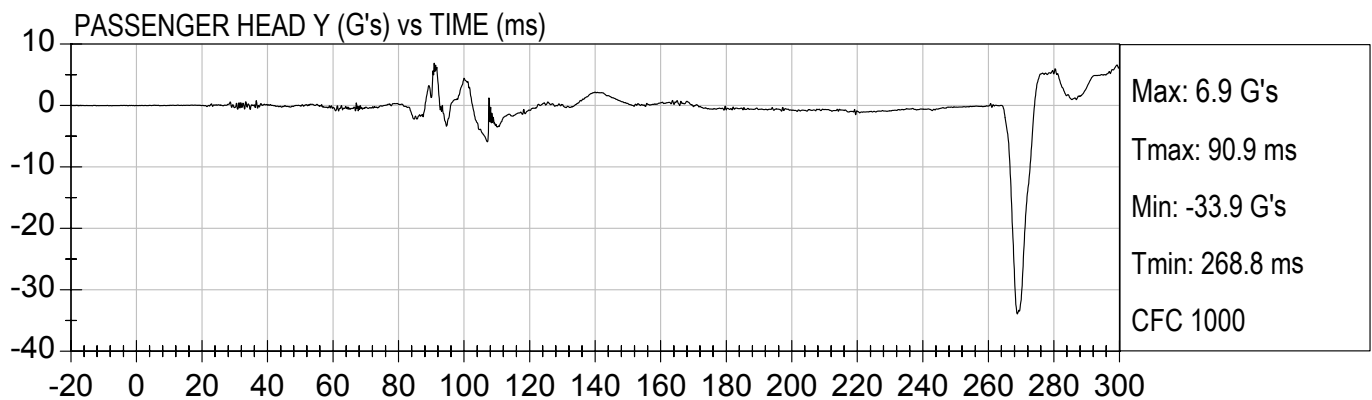
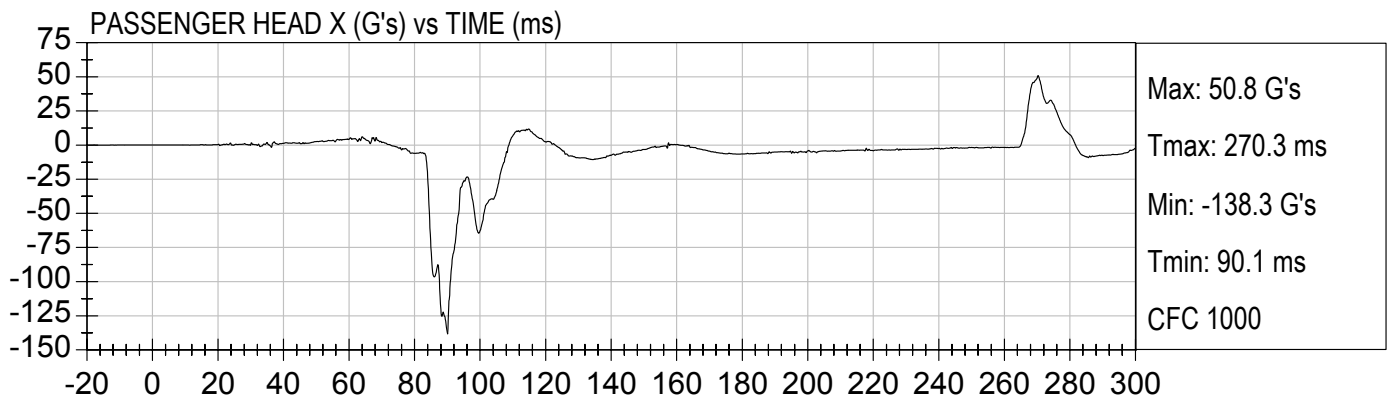


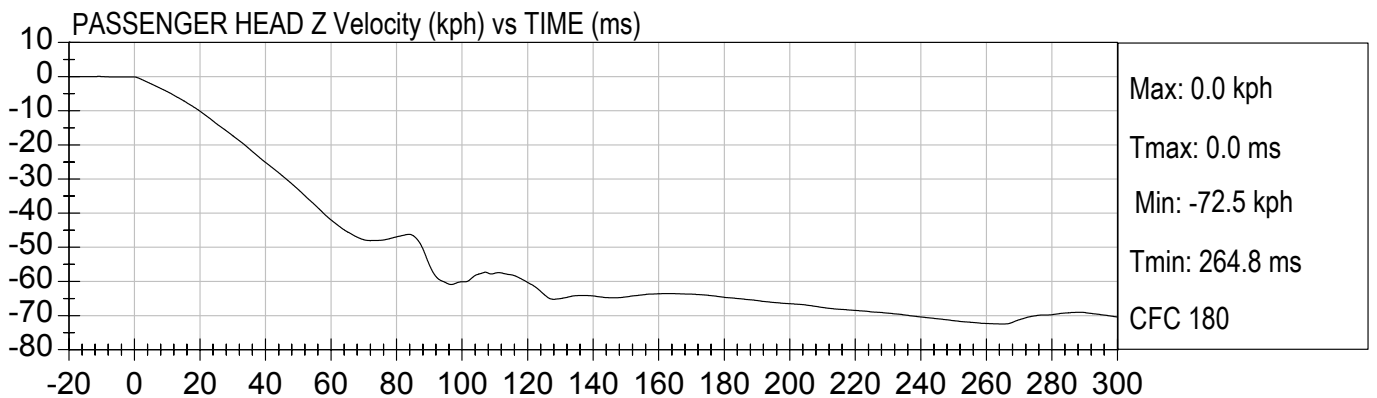
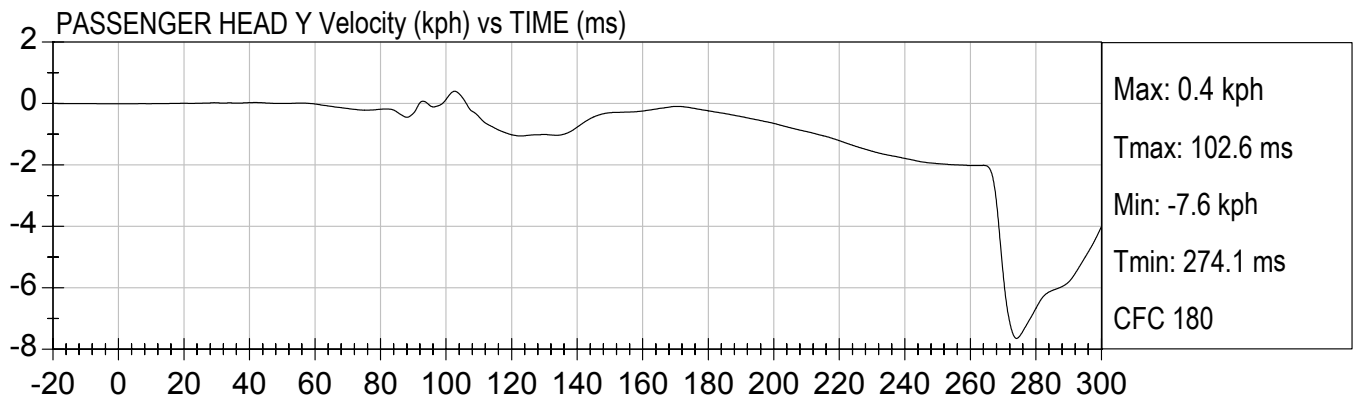
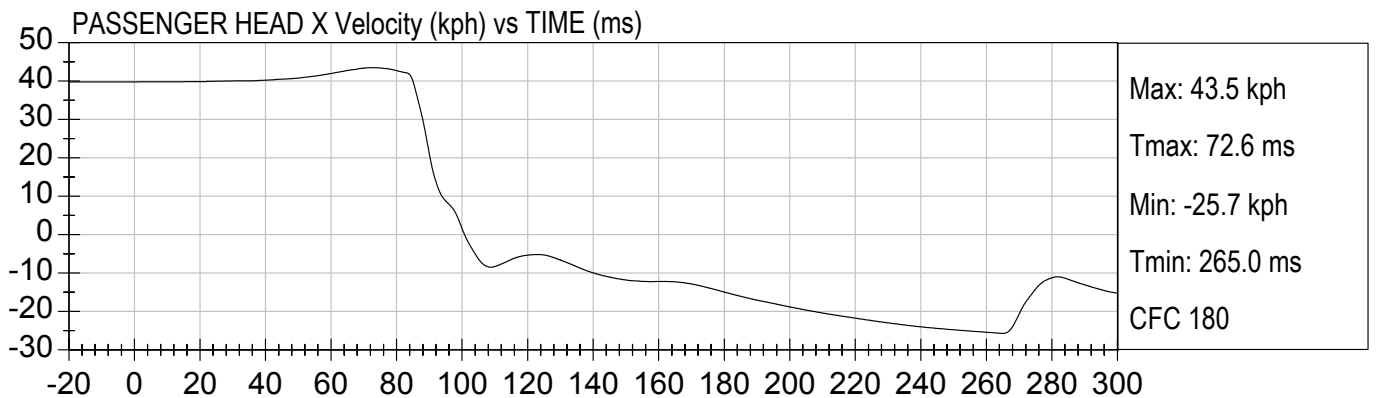




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2004 HYUNDAI ELANTRA (C40510)

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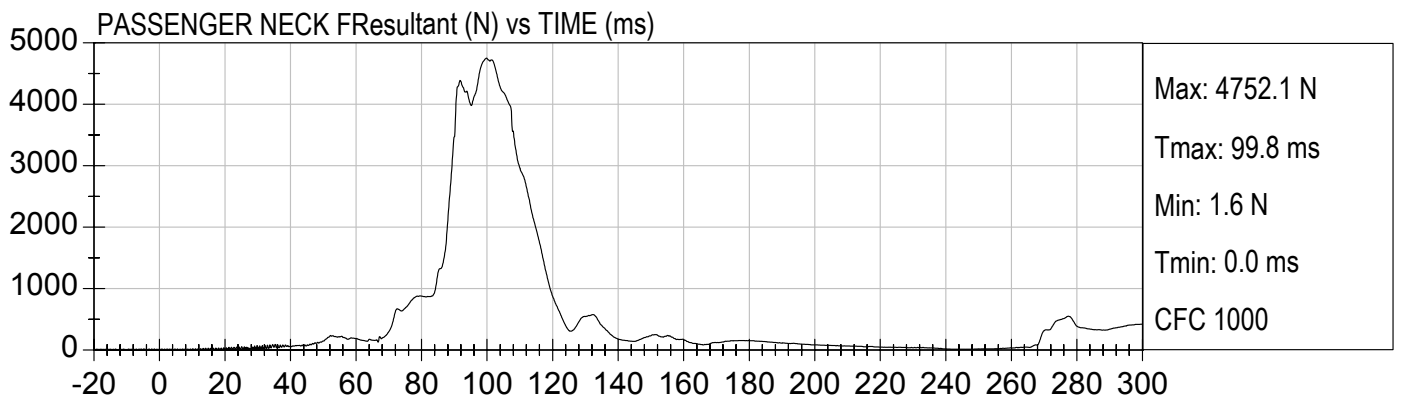
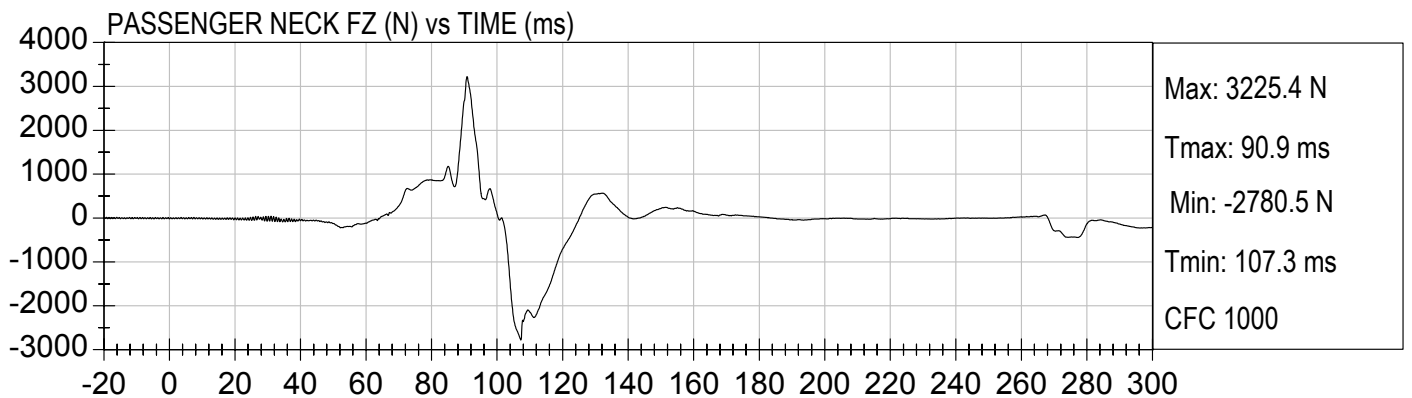
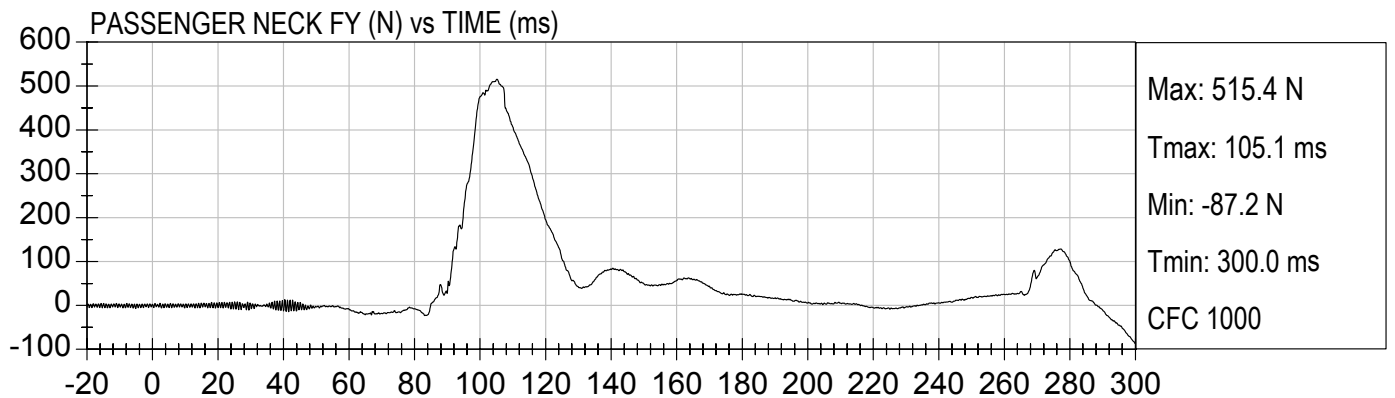
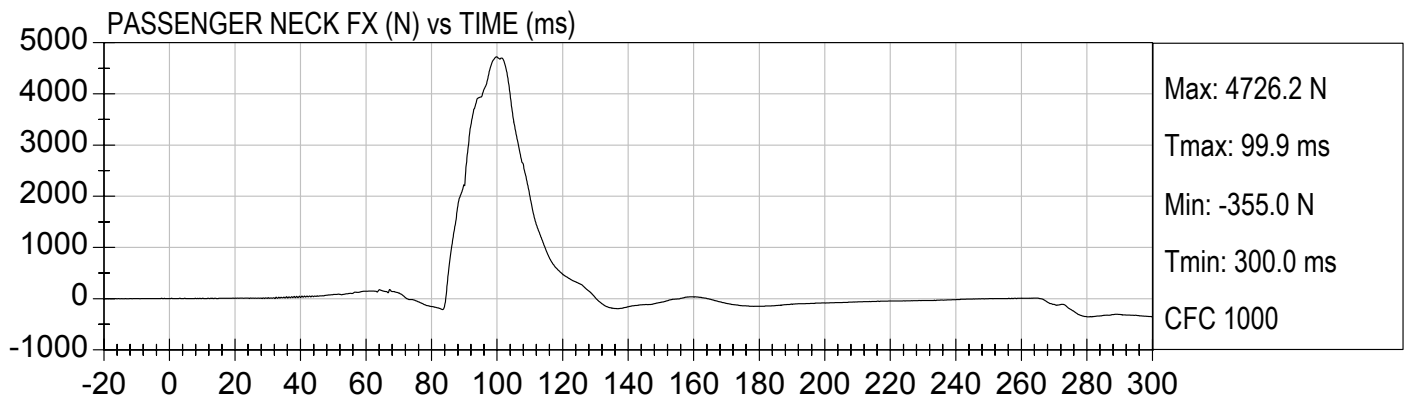






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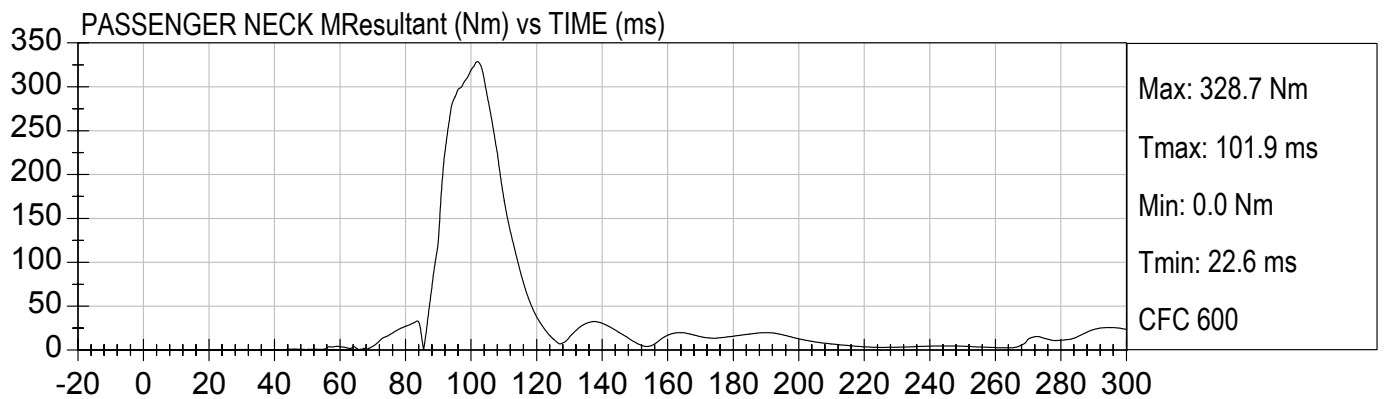
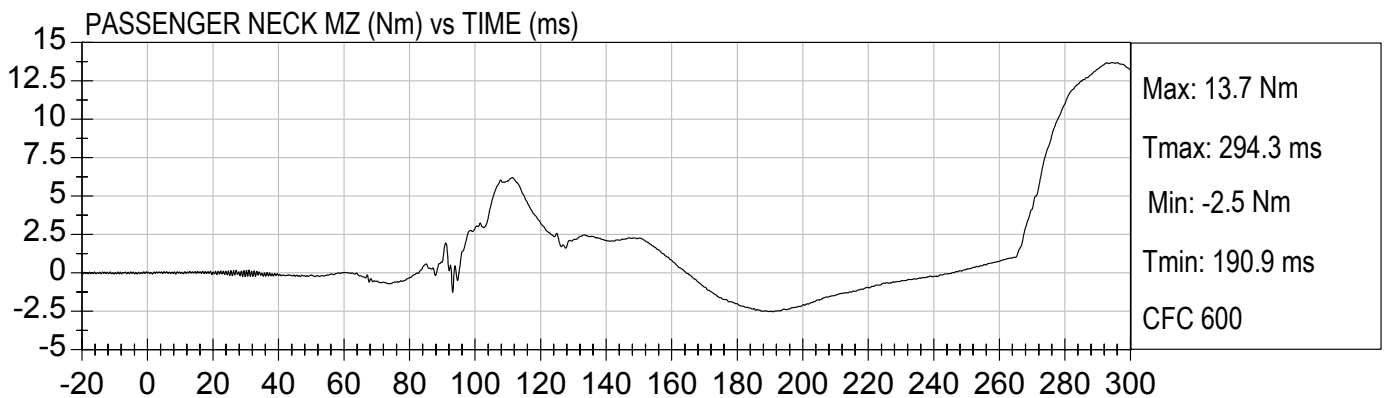
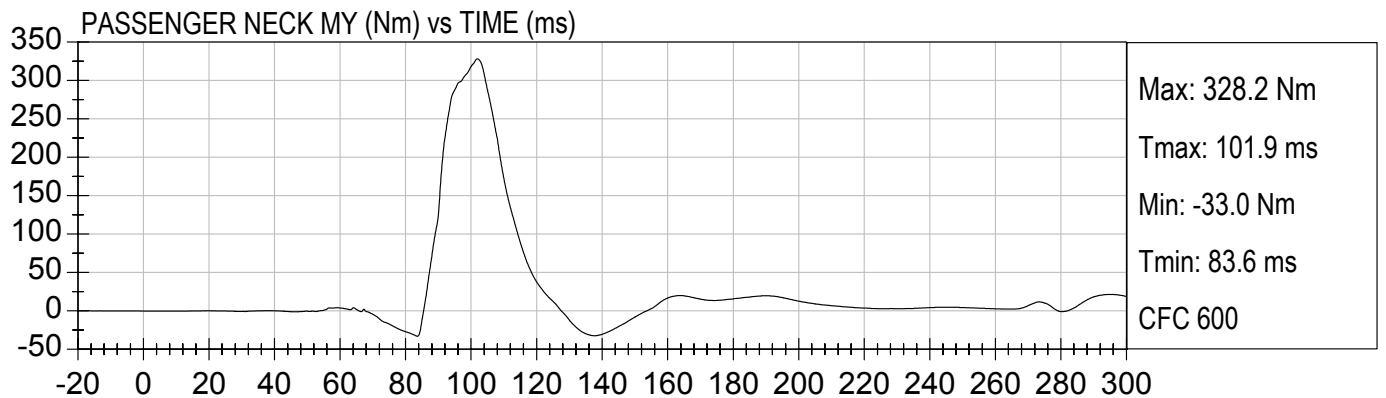
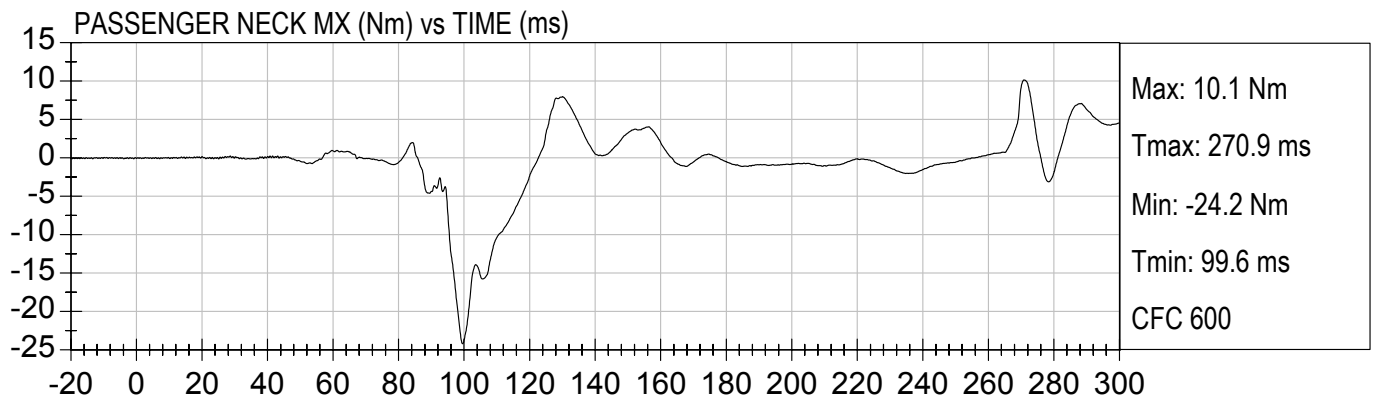
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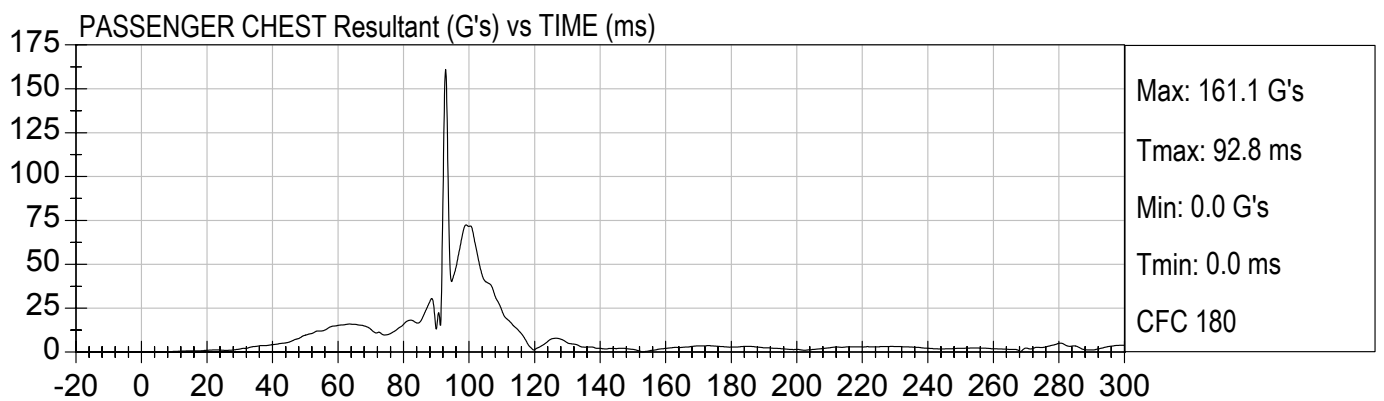
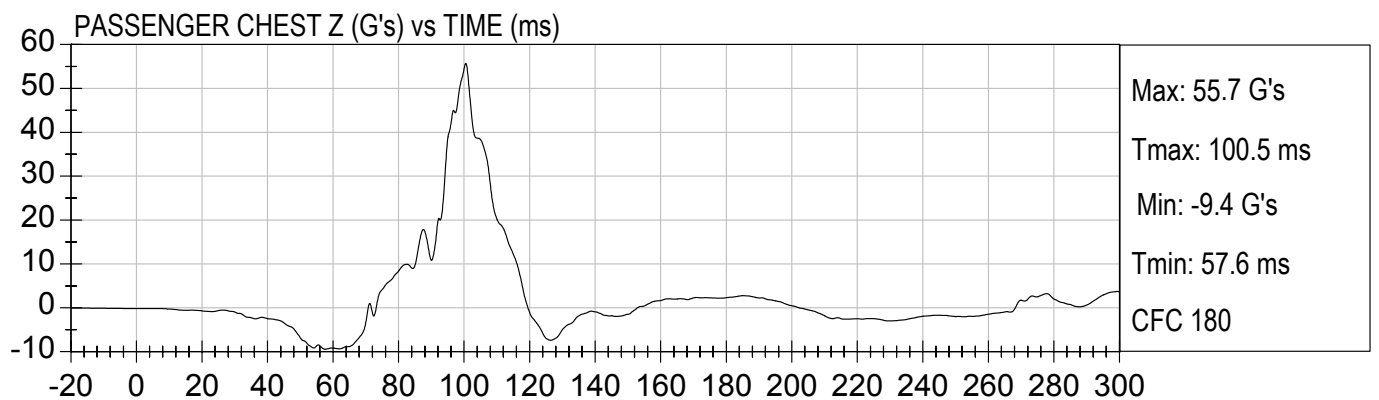
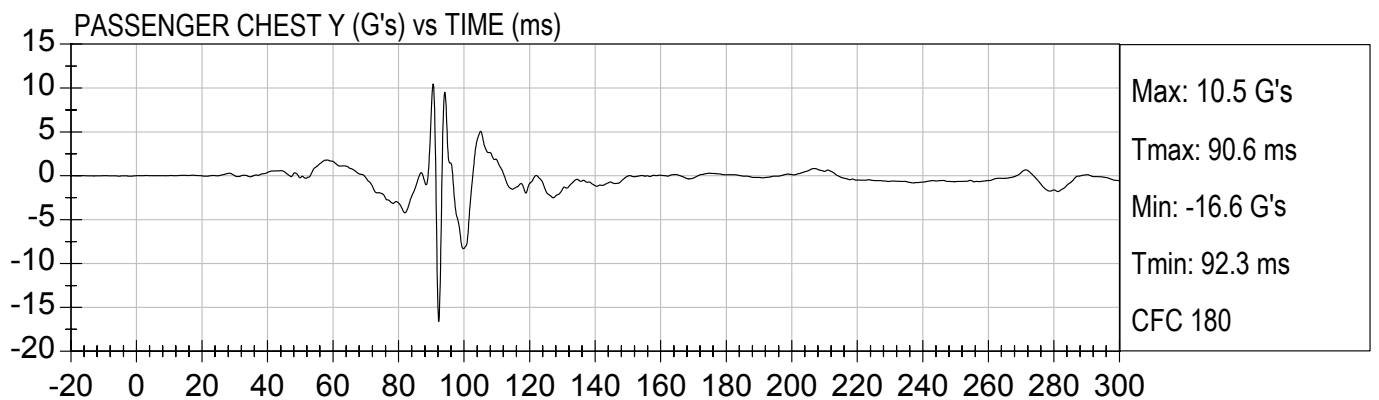
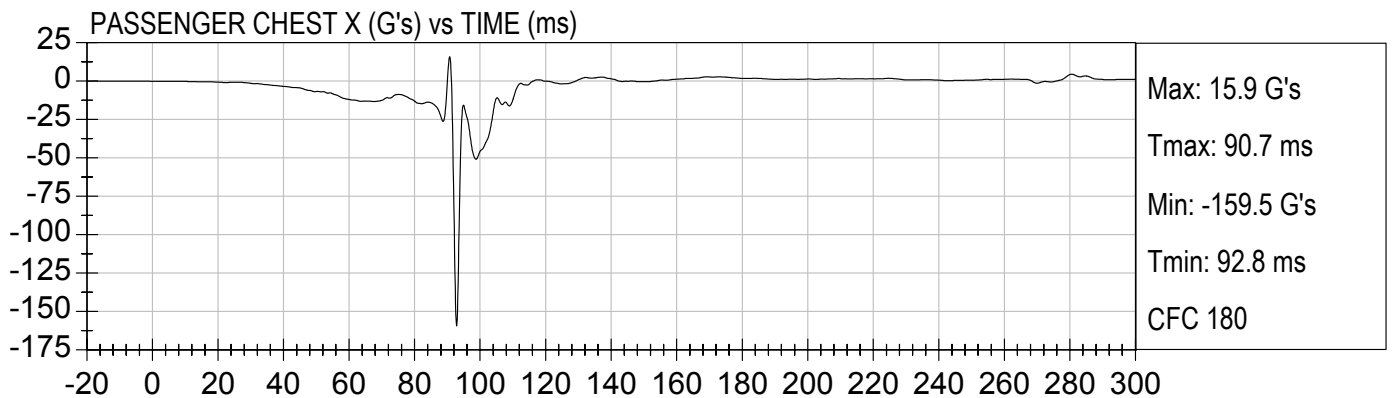
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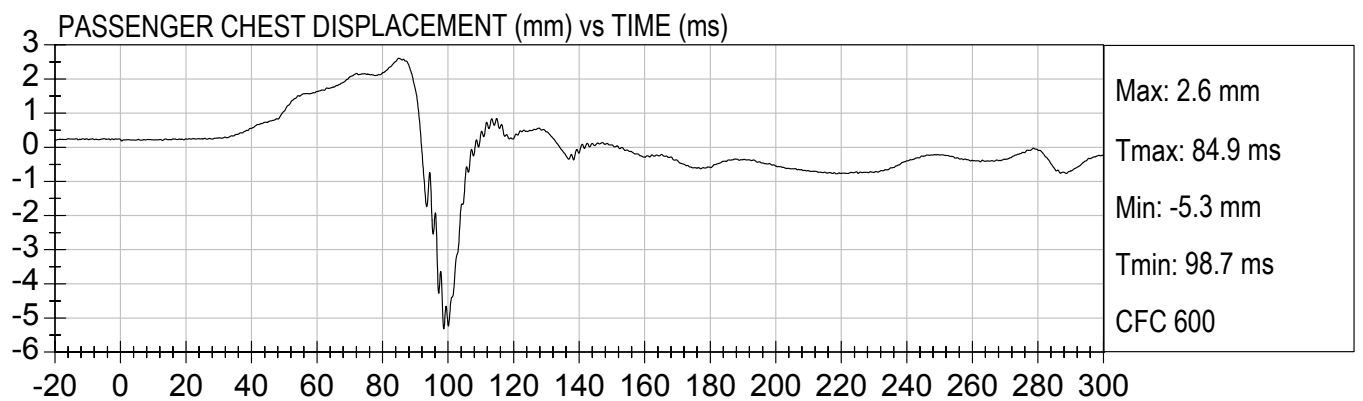
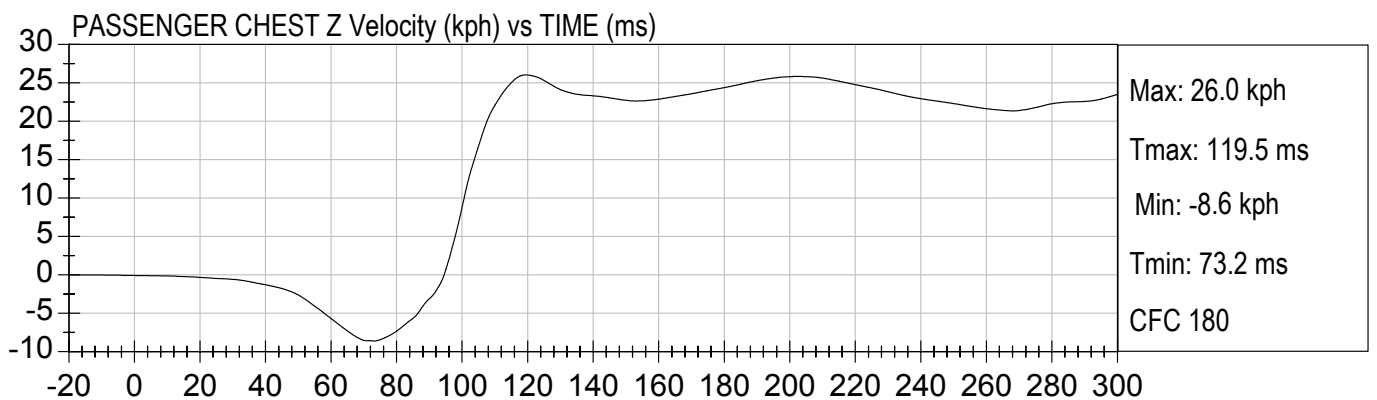
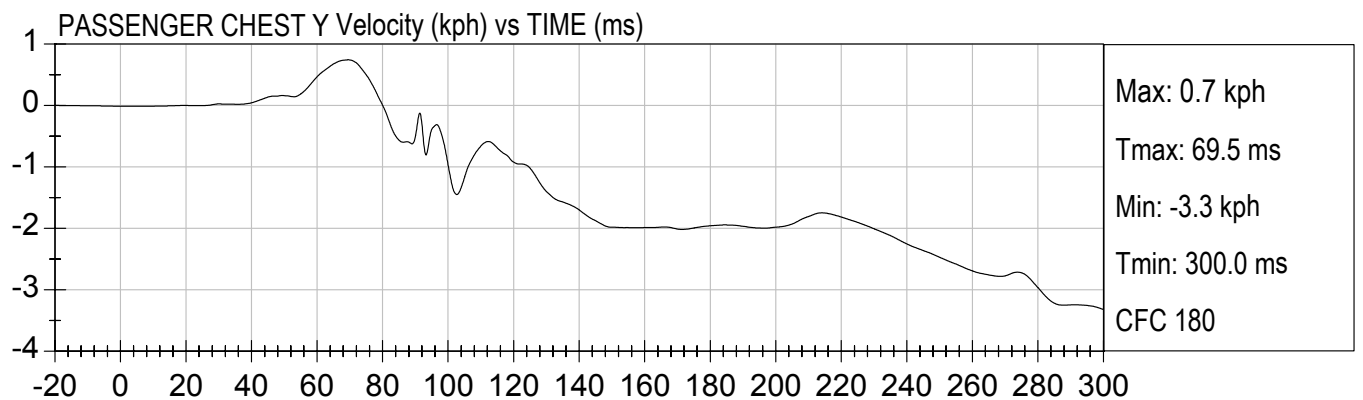
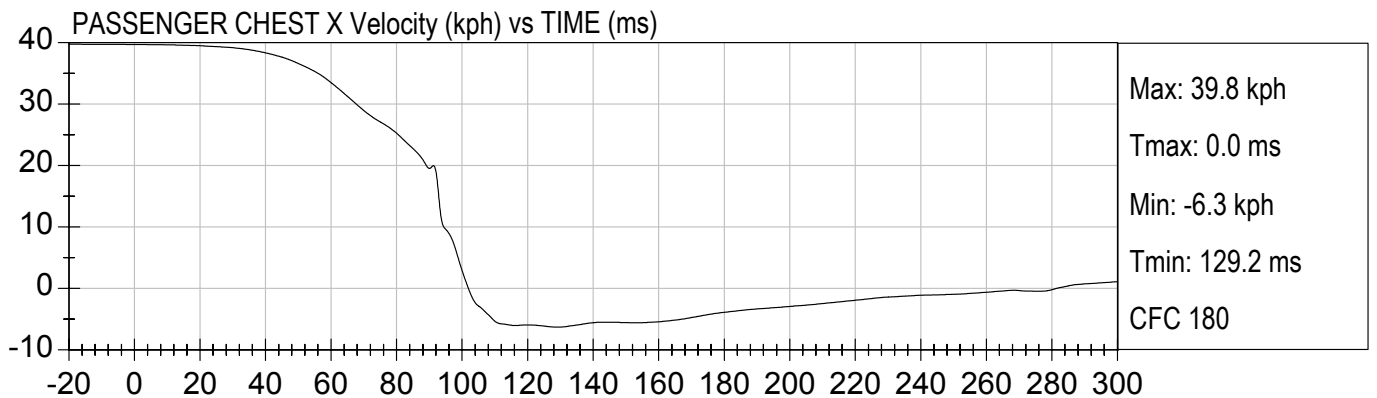


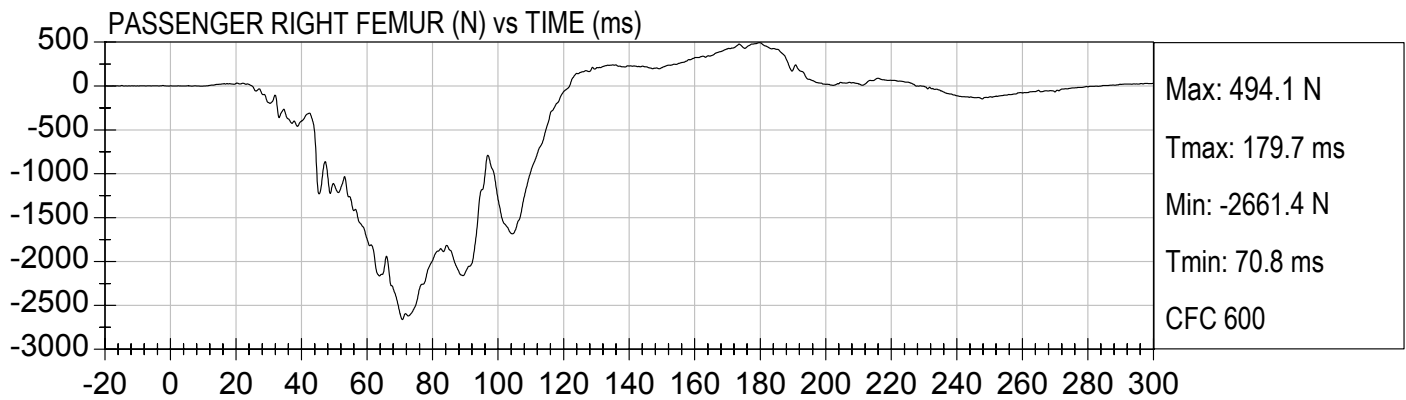
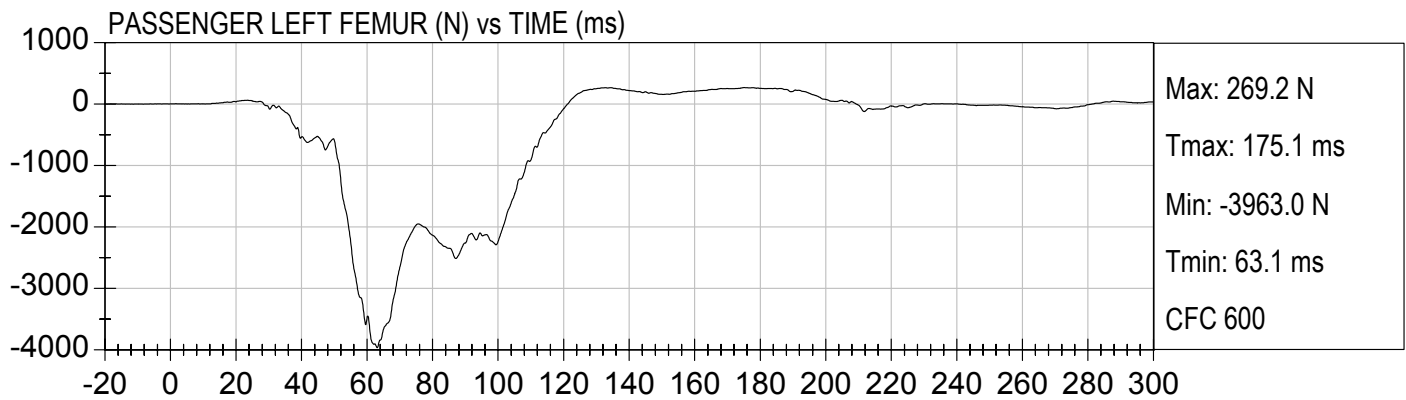


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2004 HYUNDAI ELANTRA (C40510)

Test Date: 08/27/04
Speed: 24.7 mph (39.8 km/h)





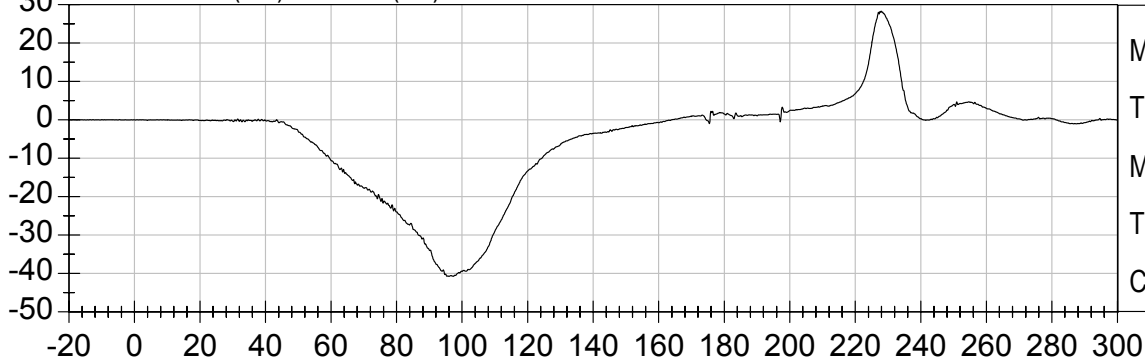




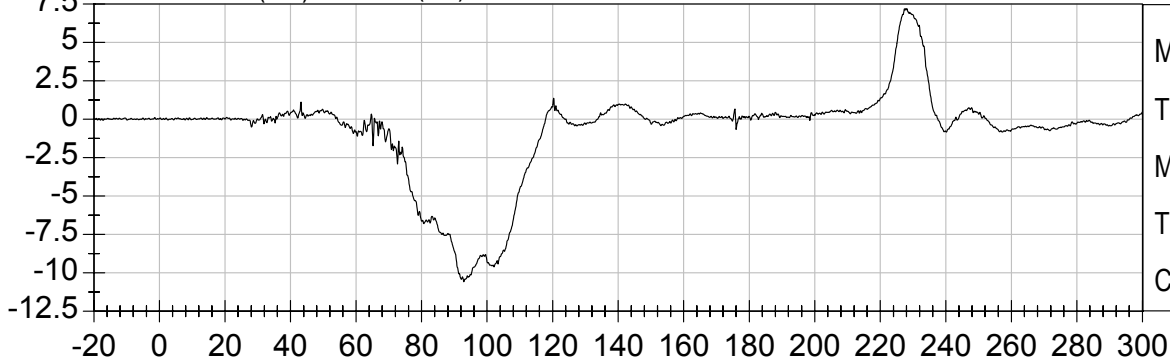
25MPH FRONTAL IMPACT
2004 HYUNDAI ELANTRA (C40510)

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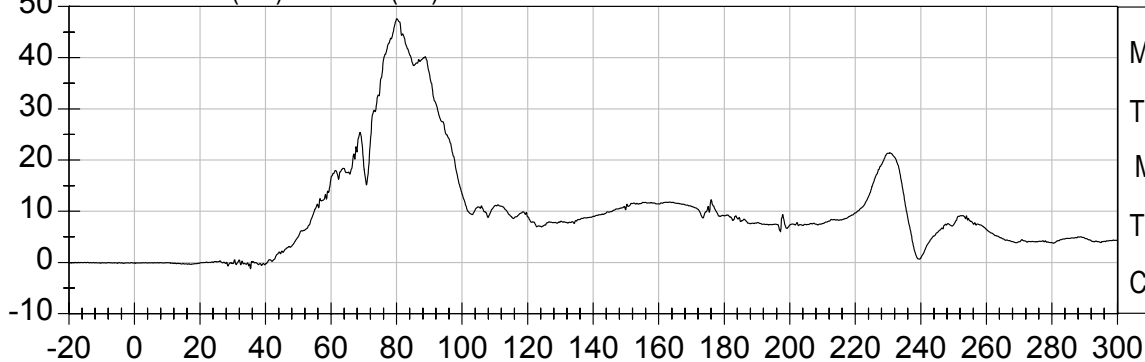
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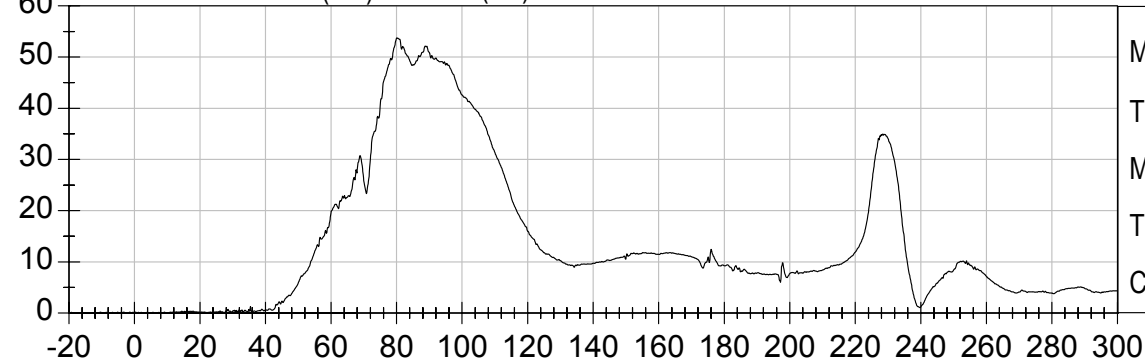
CRP HEAD Y (G's) vs TIME (ms)



CRP HEAD Z (G's) vs TIME (ms)

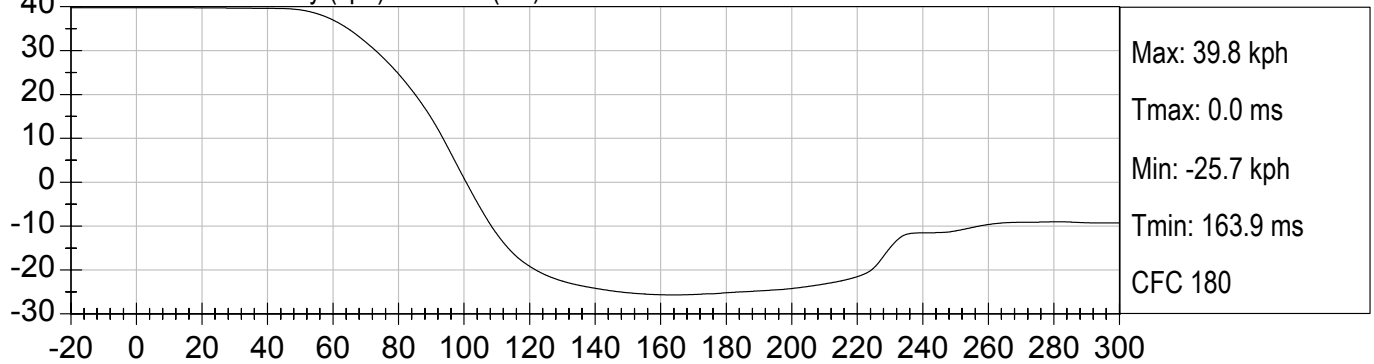


CRP HEAD Resultant (G's) vs TIME (ms)

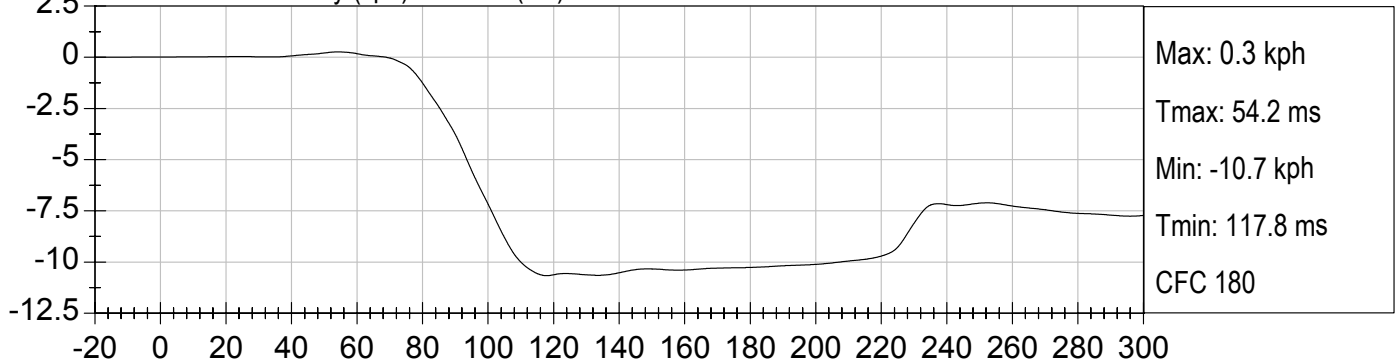




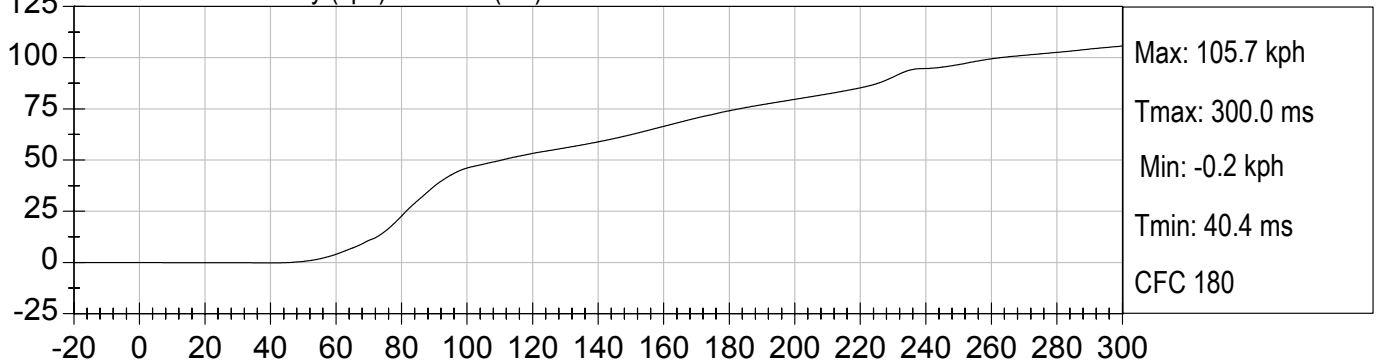
CRP HEAD X Velocity (kph) vs TIME (ms)



CRP HEAD Y Velocity (kph) vs TIME (ms)



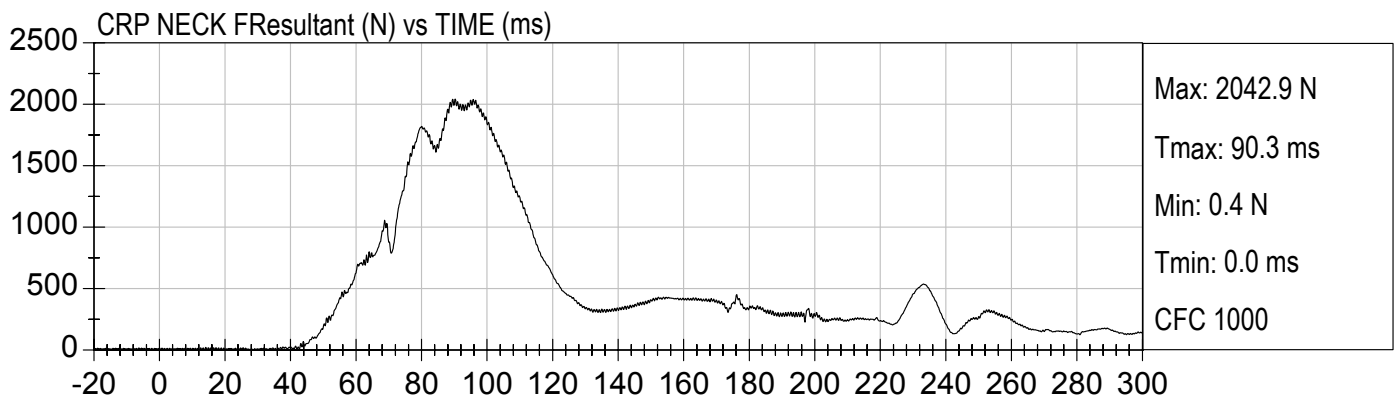
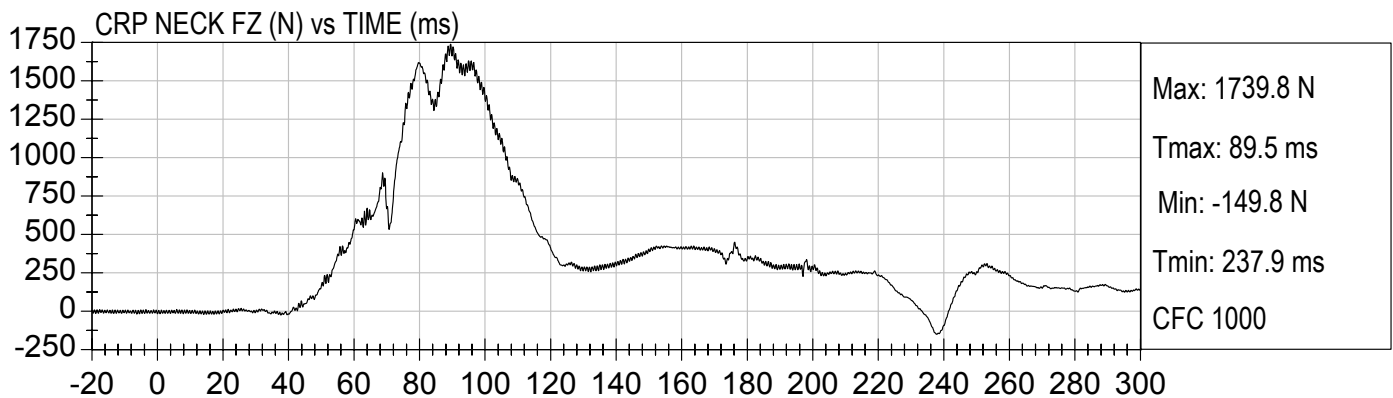
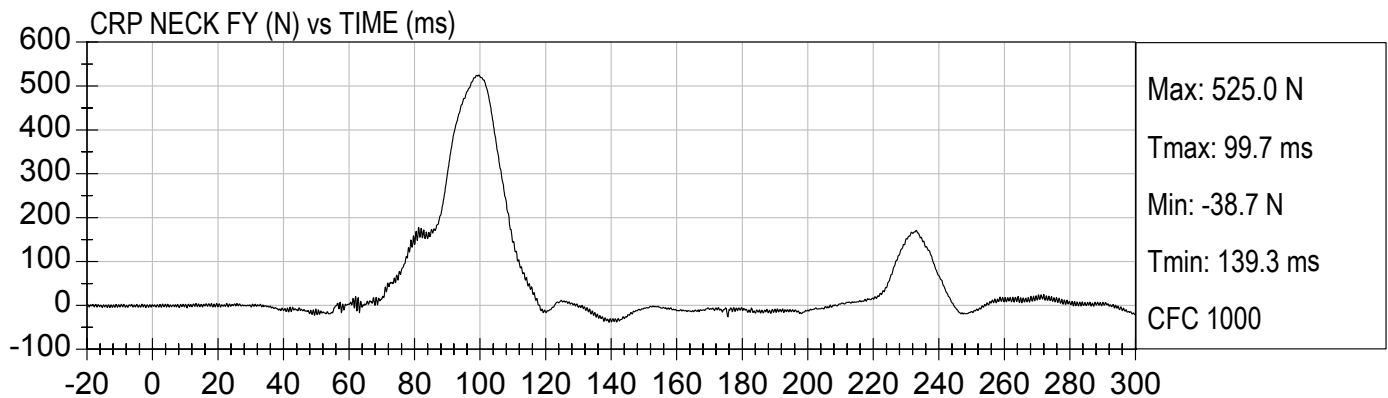
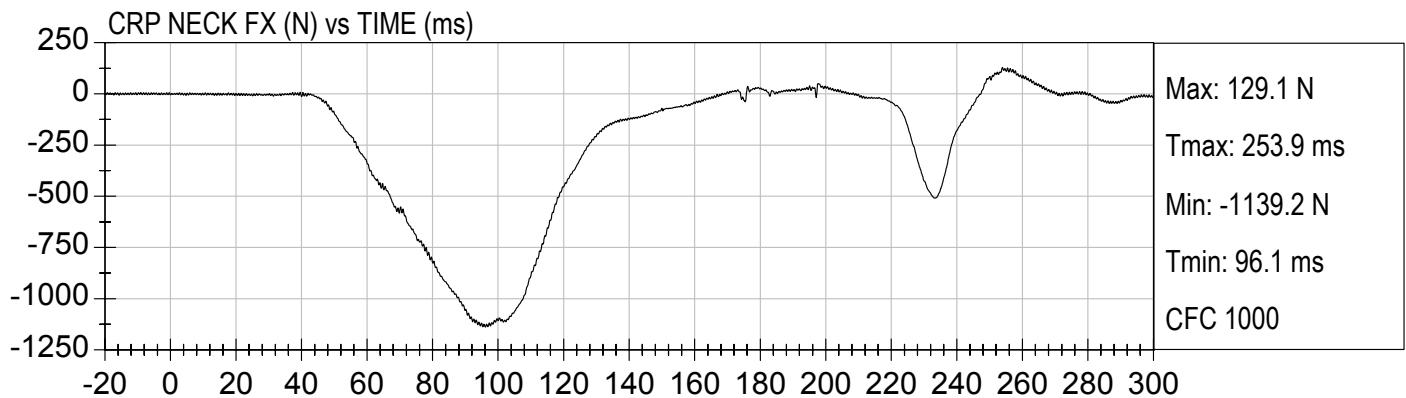
CRP HEAD Z Velocity (kph) vs TIME (ms)





25MPH FRONTAL IMPACT
2004 HYUNDAI ELANTRA (C40510)

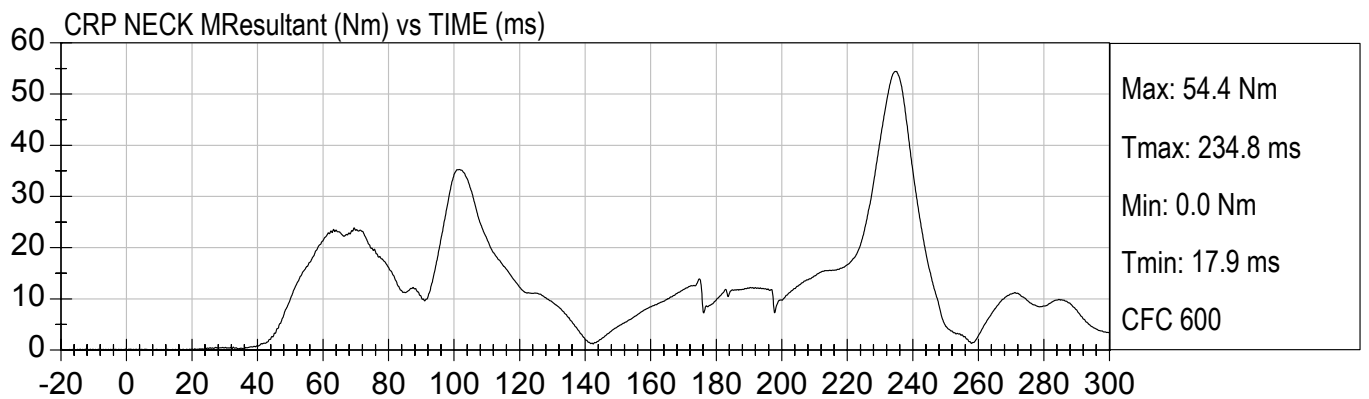
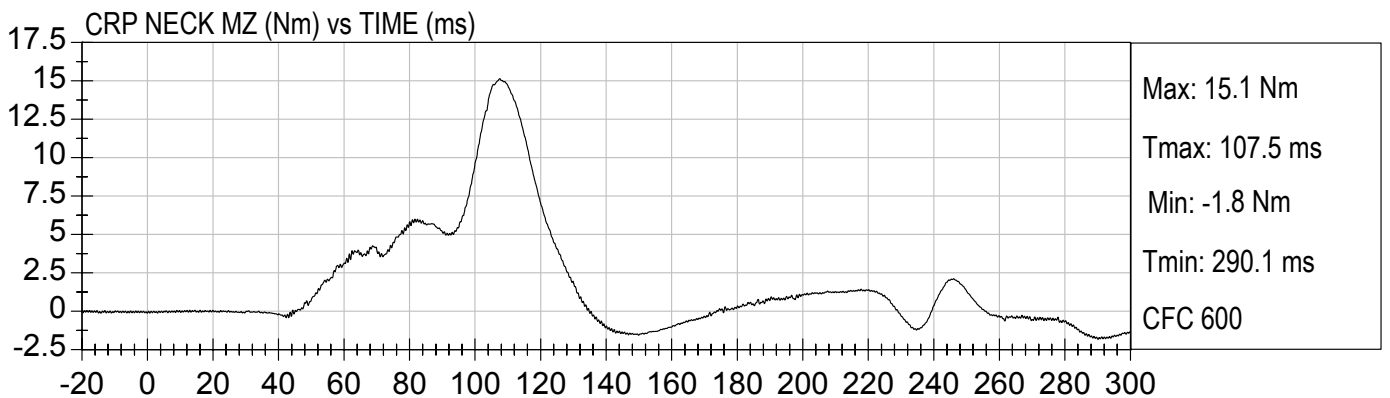
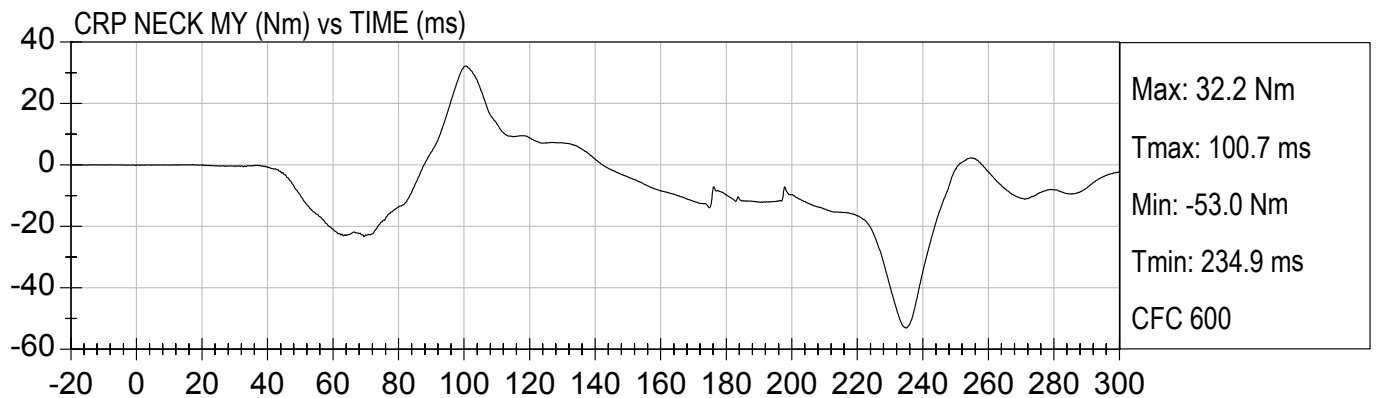
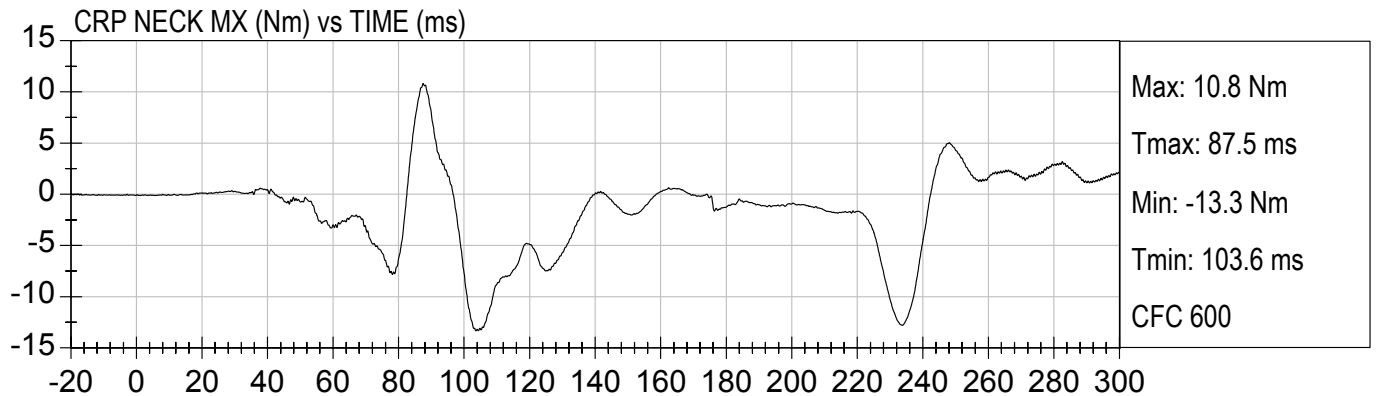
Test Date: 08/27/04
Speed: 24.7 mph (39.8 km/h)

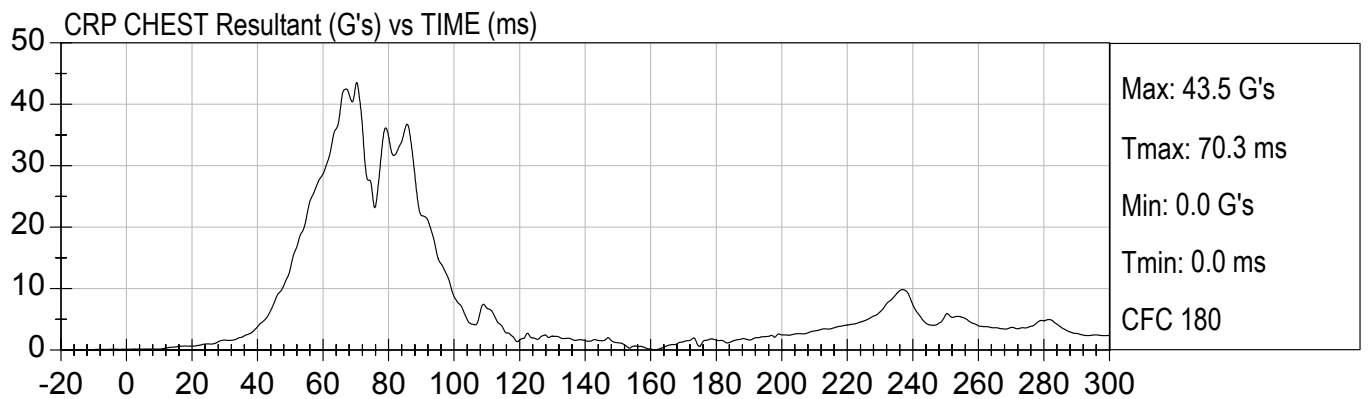
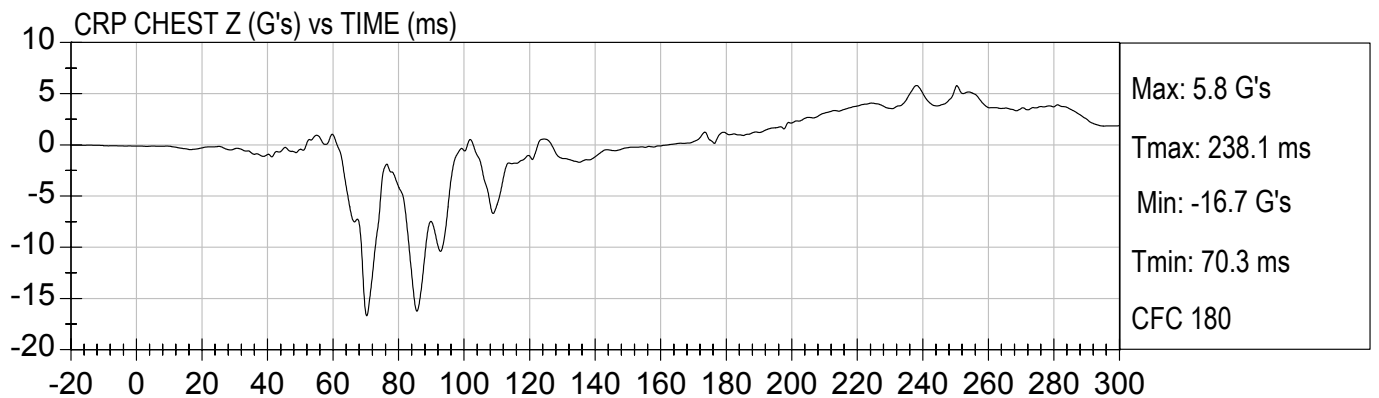
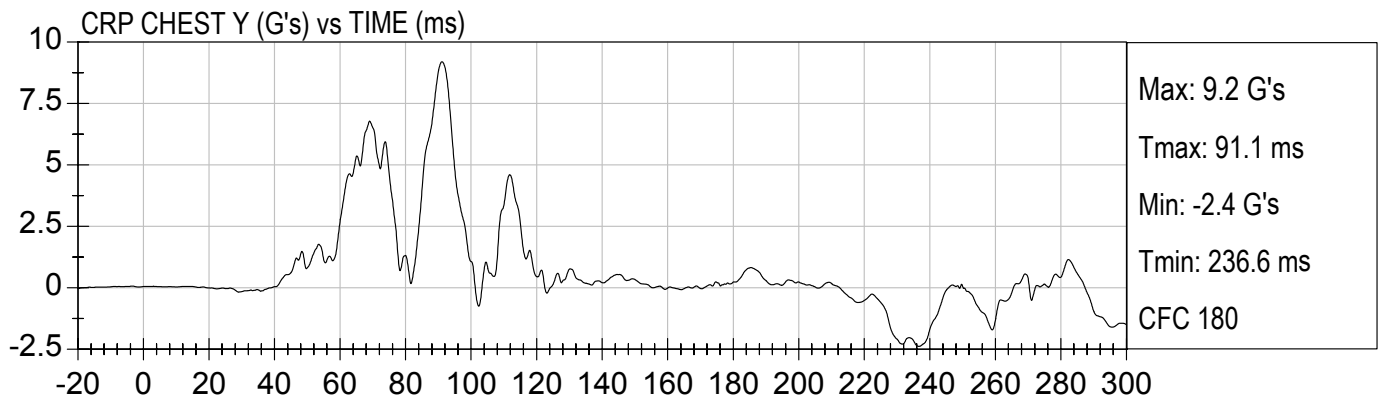
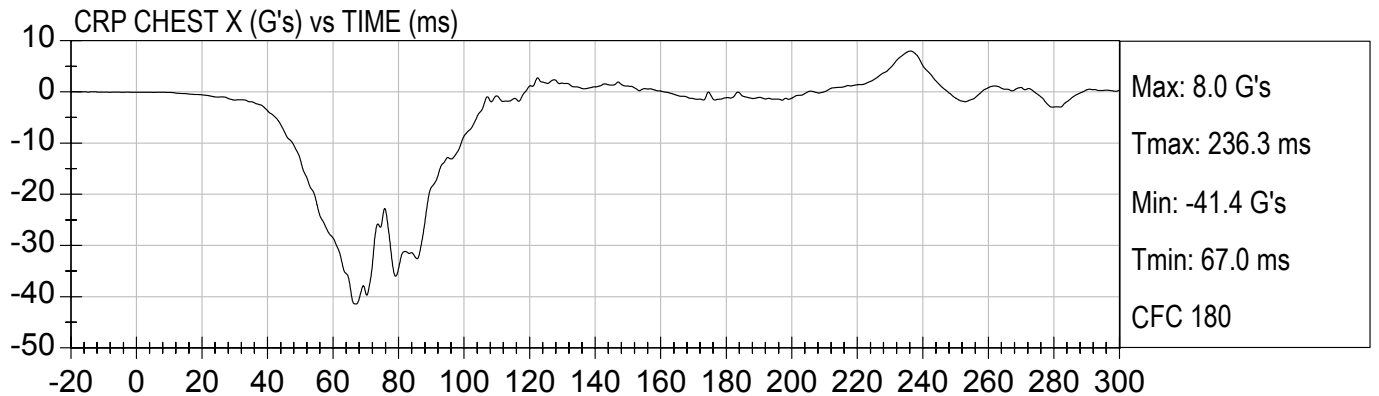




25MPH FRONTAL IMPACT
2004 HYUNDAI ELANTRA (C40510)

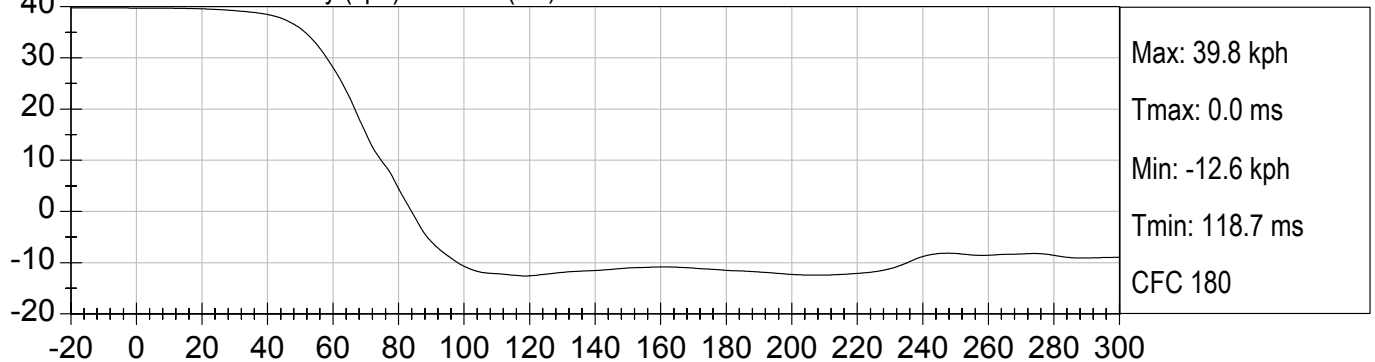
Test Date: 08/27/04
Speed: 24.7 mph (39.8 km/h)



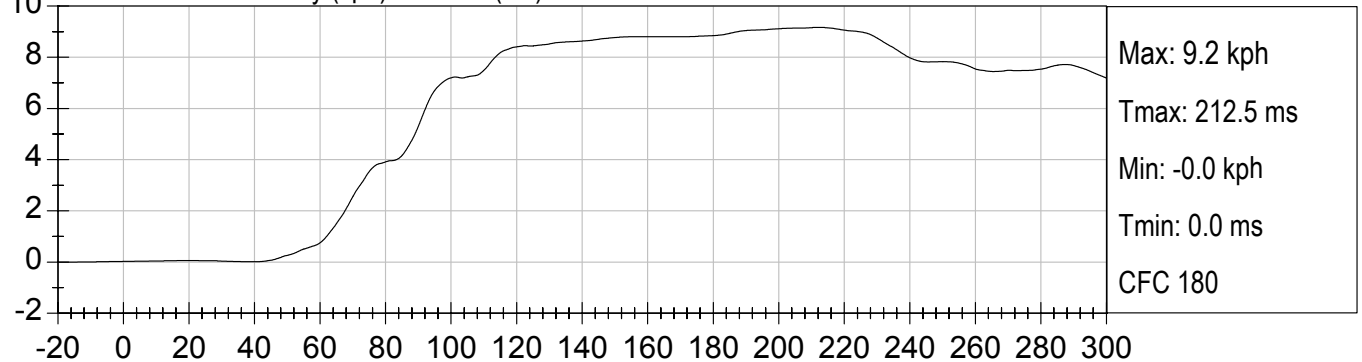




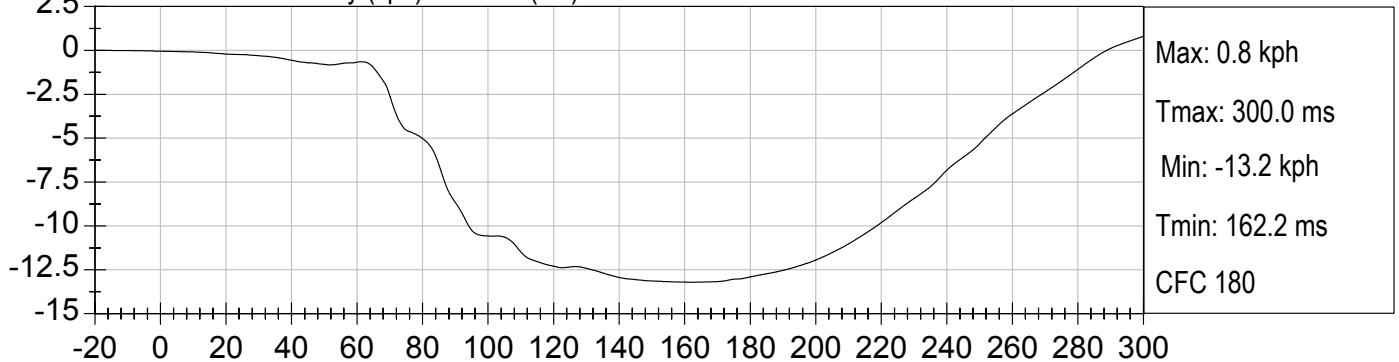
CRP CHEST X Velocity (kph) vs TIME (ms)



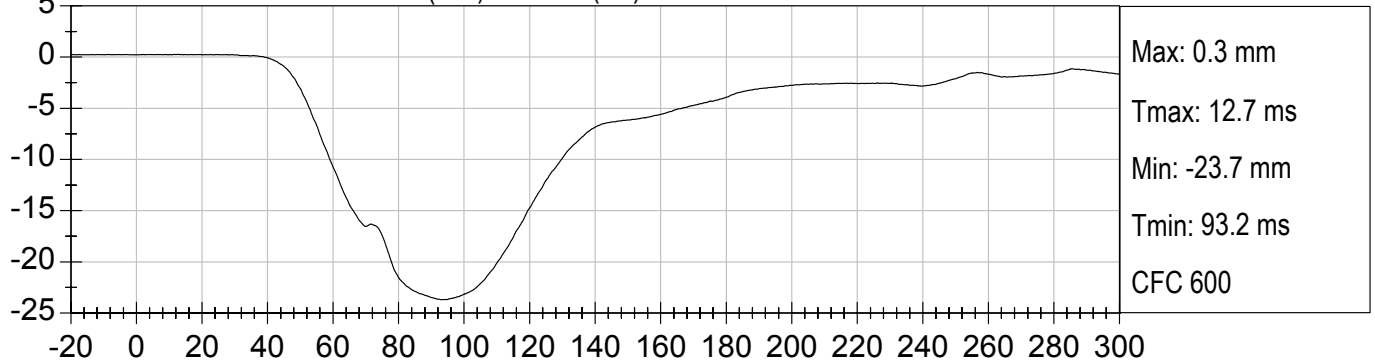
CRP CHEST Y Velocity (kph) vs TIME (ms)



CRP CHEST Z Velocity (kph) vs TIME (ms)

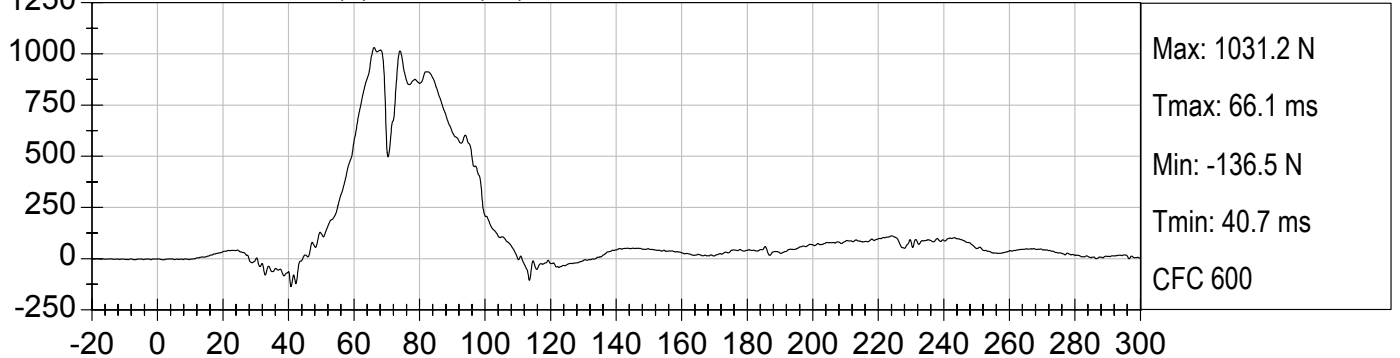


CRP CHEST DISPLACEMENT (mm) vs TIME (ms)

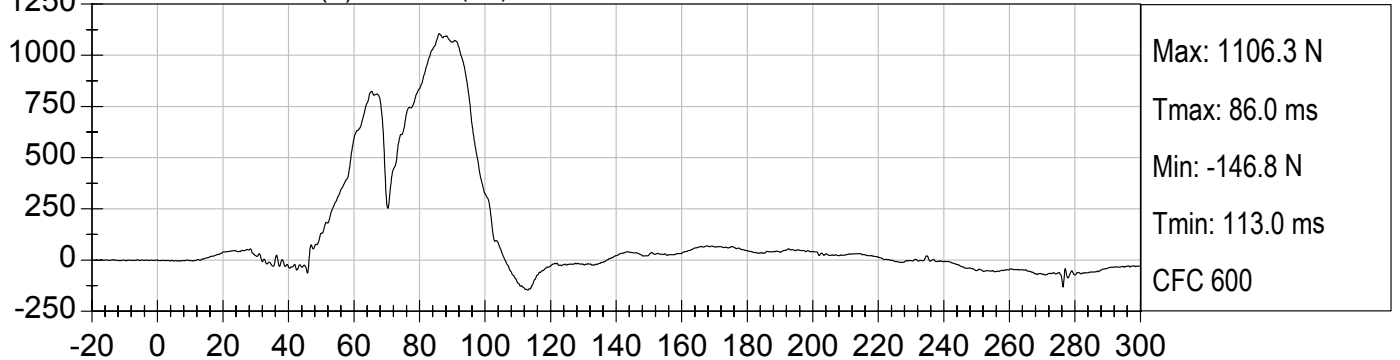




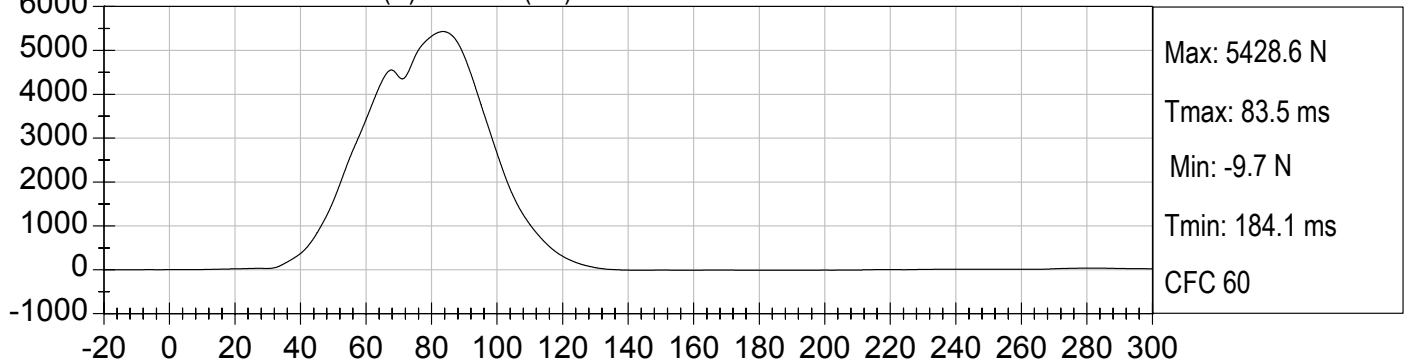
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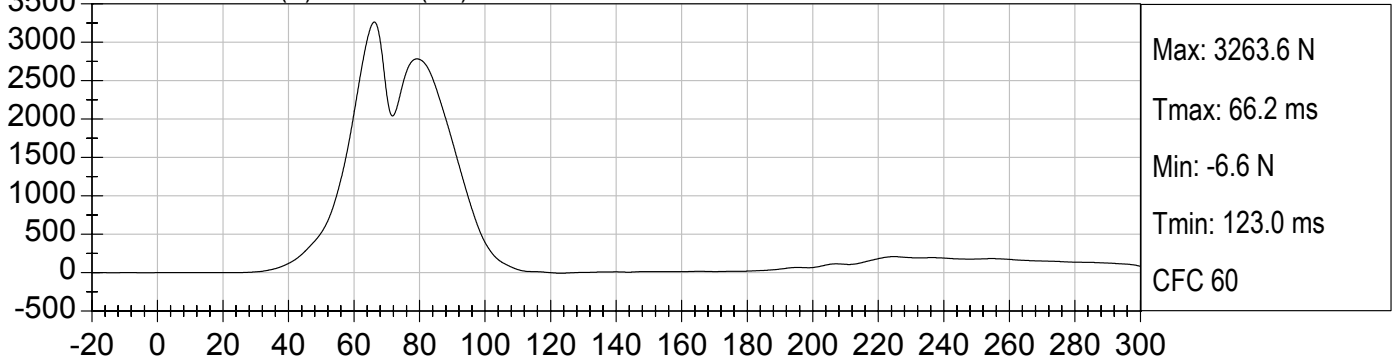
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CRP SHOULDER BELT (N) vs TIME (ms)



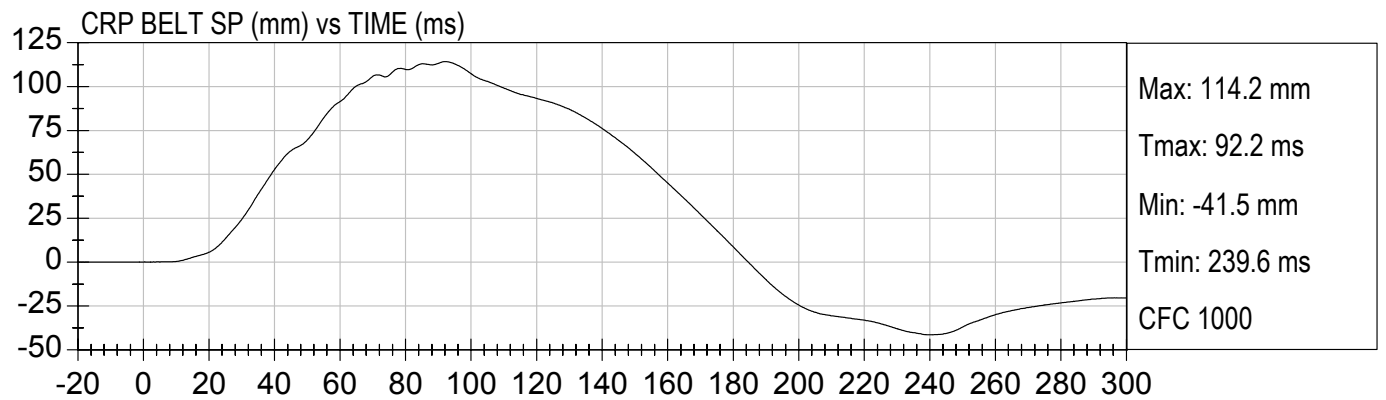
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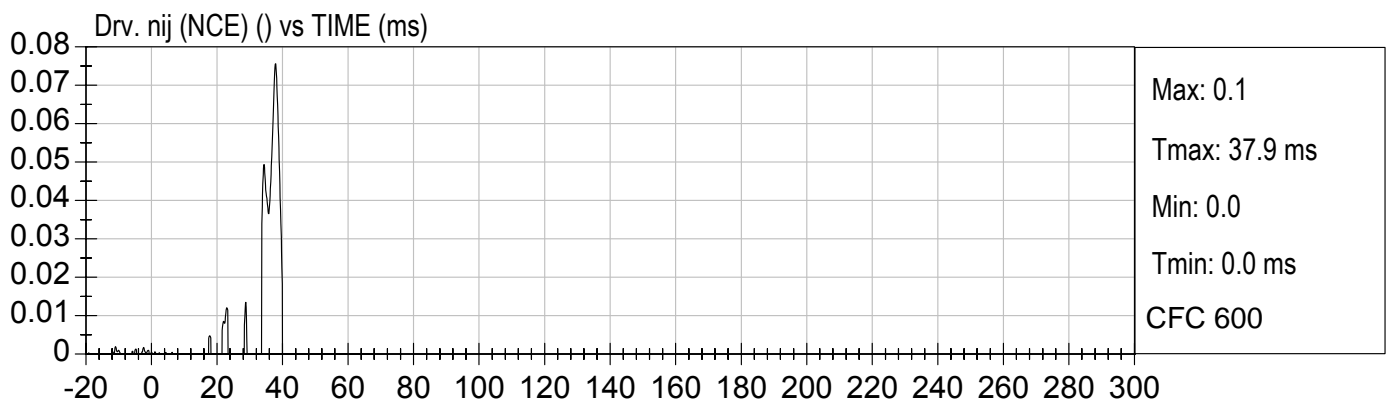
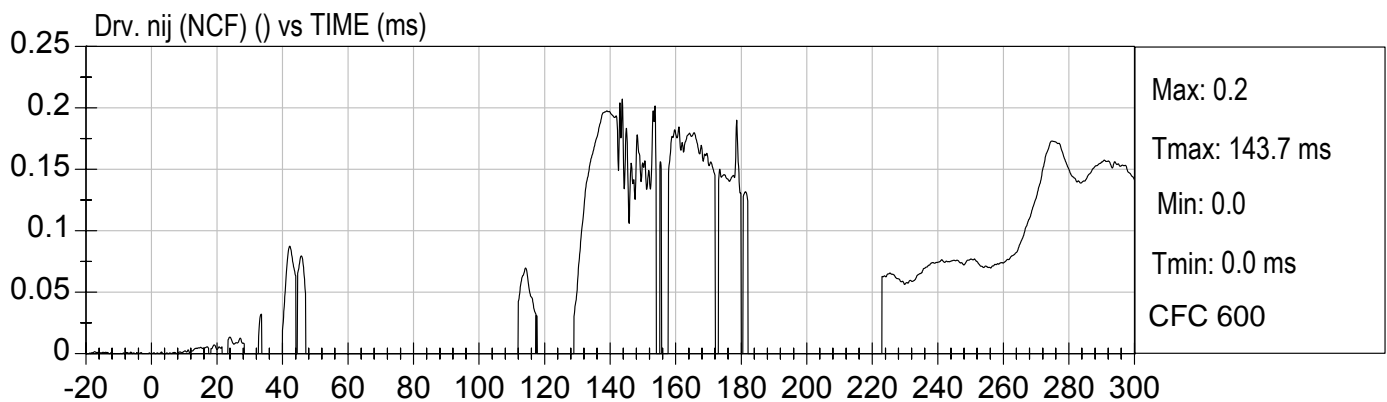
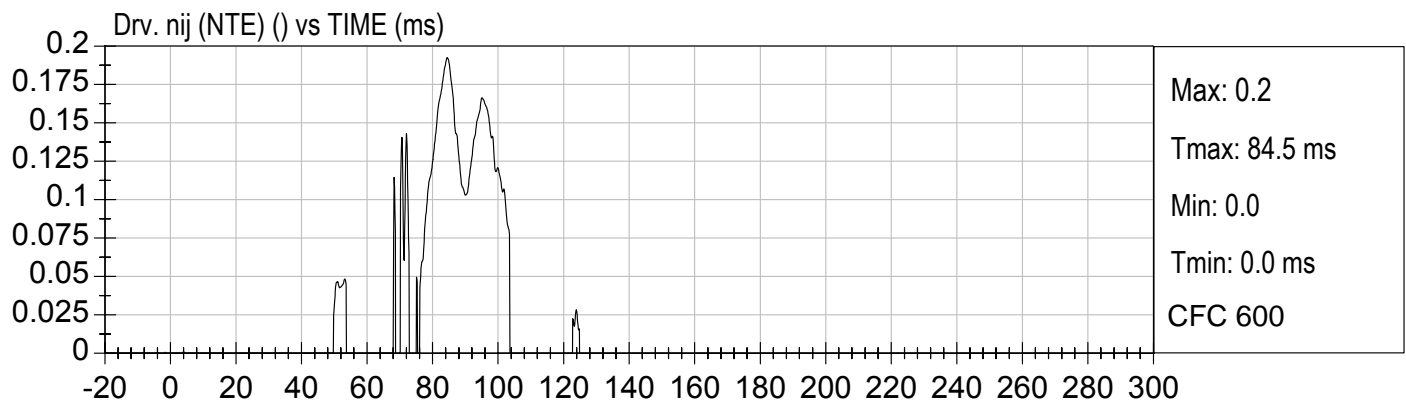
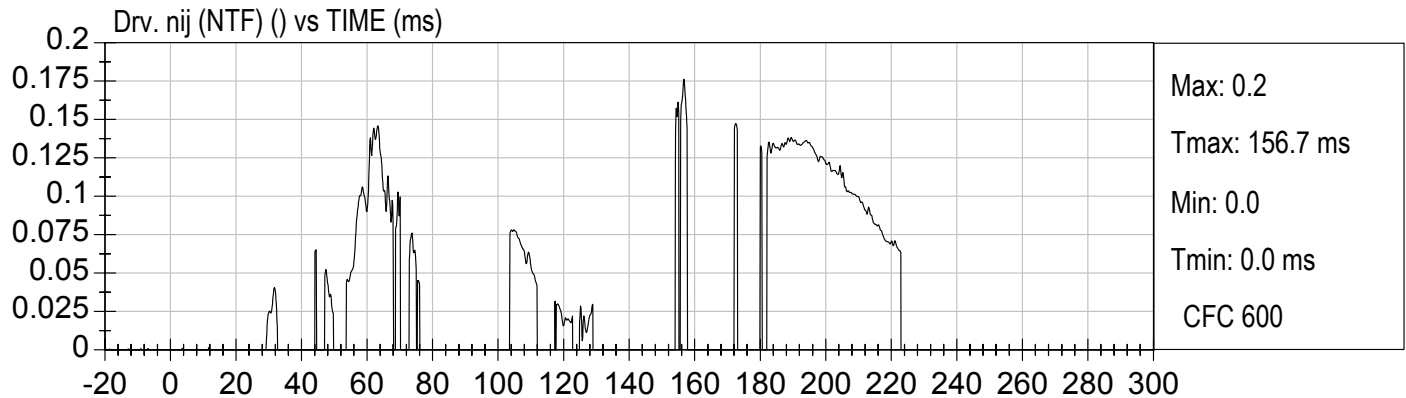




25MPH FRONTAL IMPACT
2004 HYUNDAI ELANTRA (C40510)

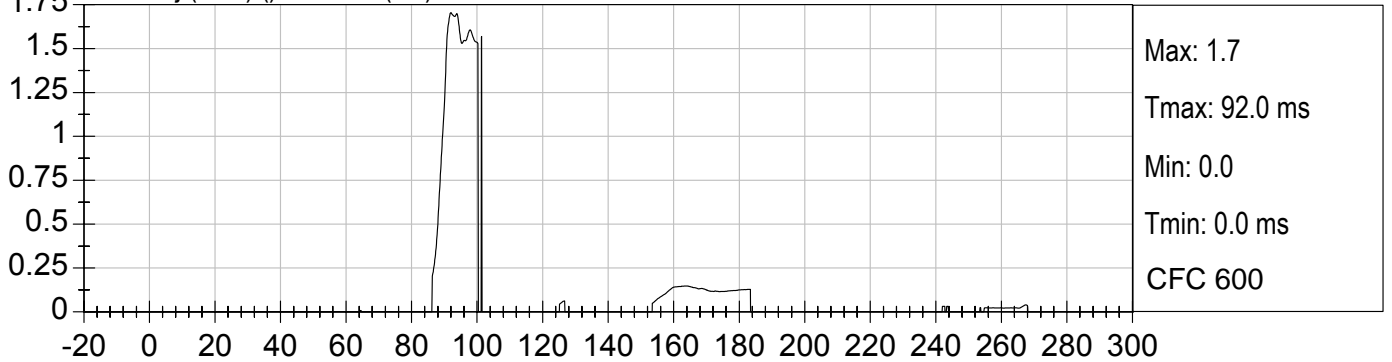
Test Date: 08/27/04
Speed: 24.7 mph (39.8 km/h)



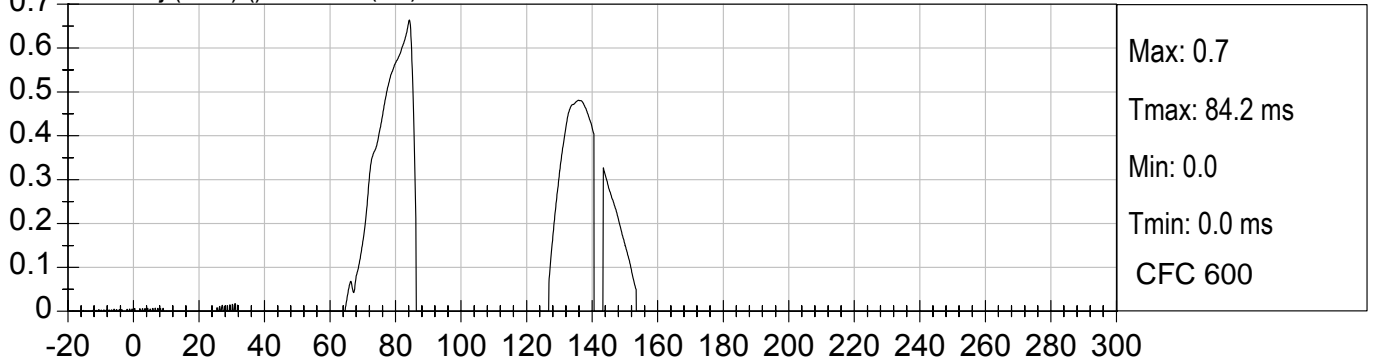




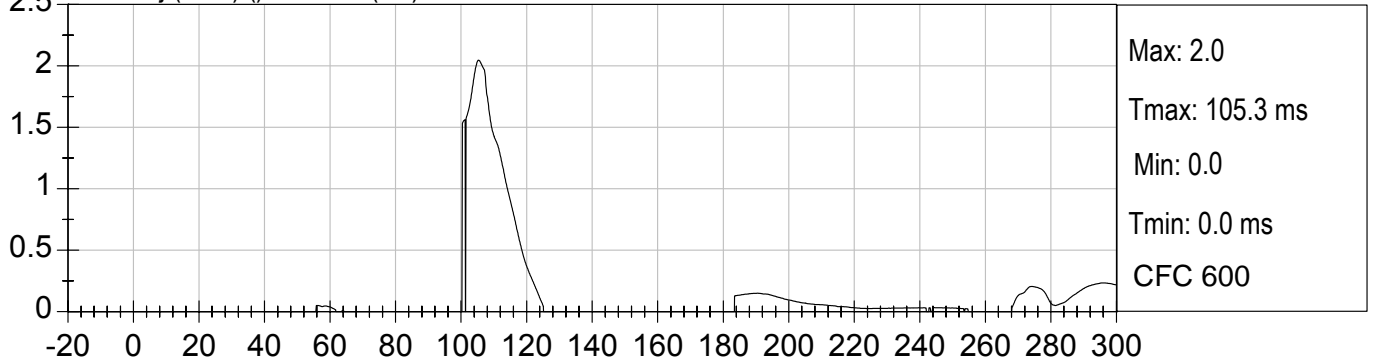
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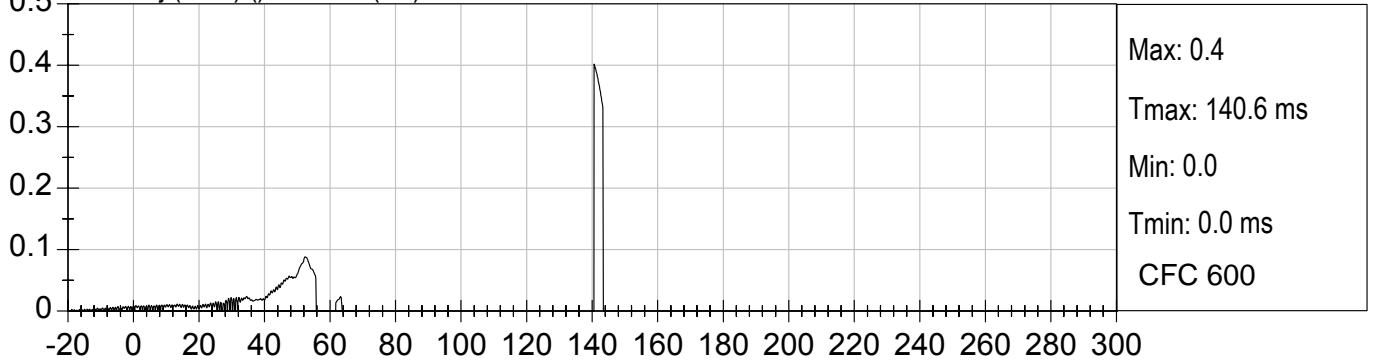
Pass. nij (NTE) () vs TIME (ms)



Pass. nij (NCF) () vs TIME (ms)

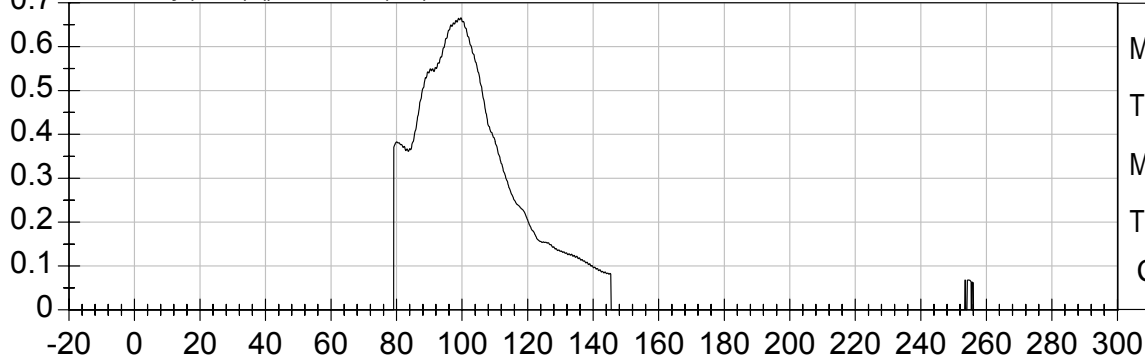


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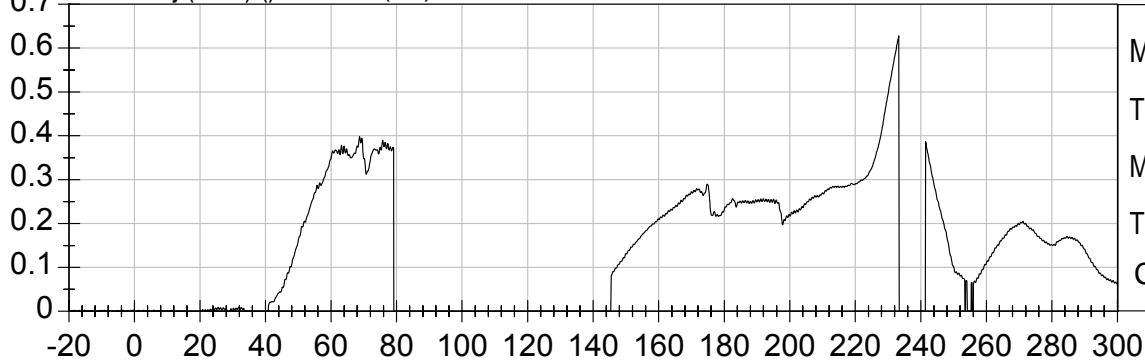




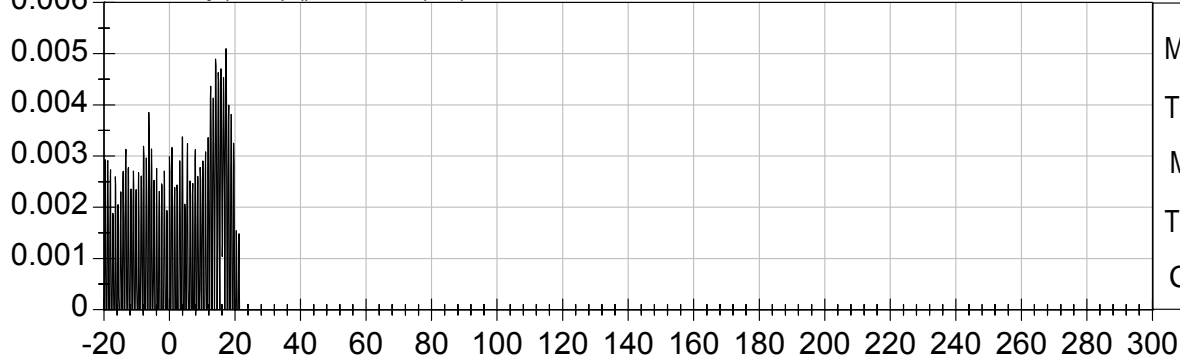
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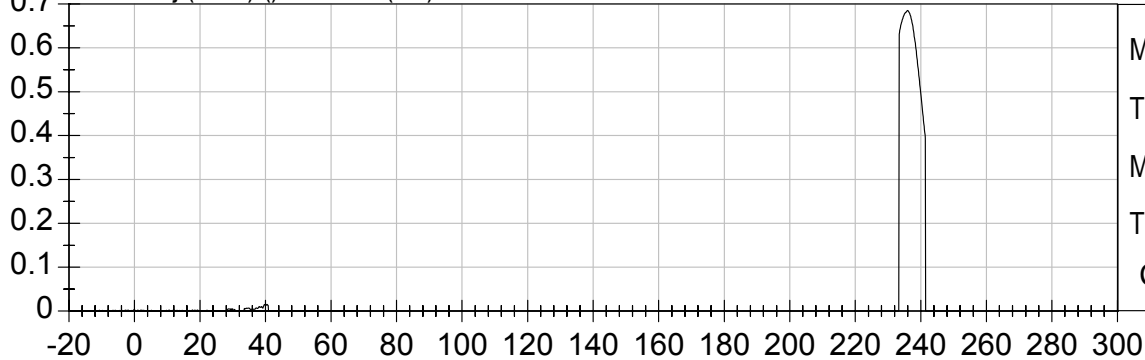
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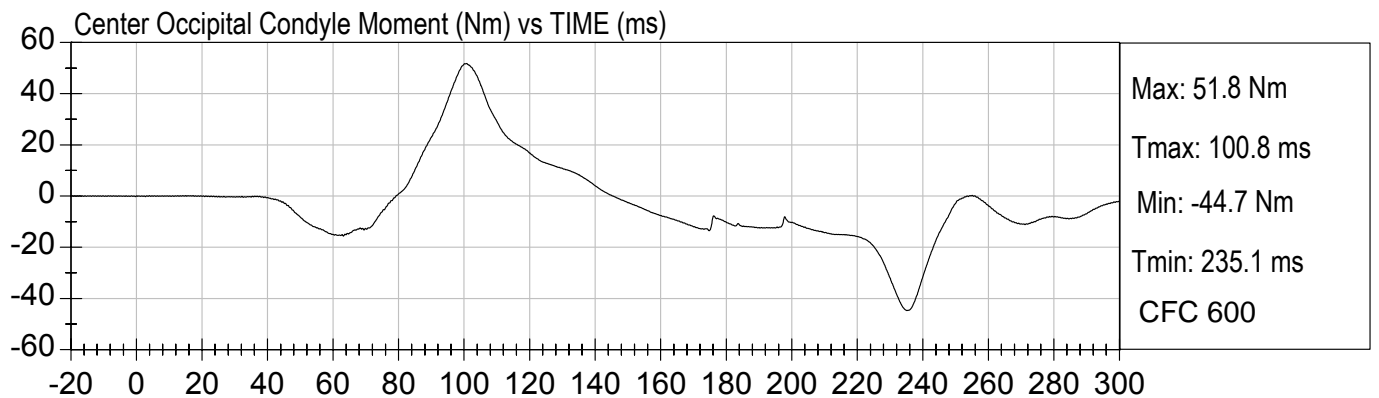
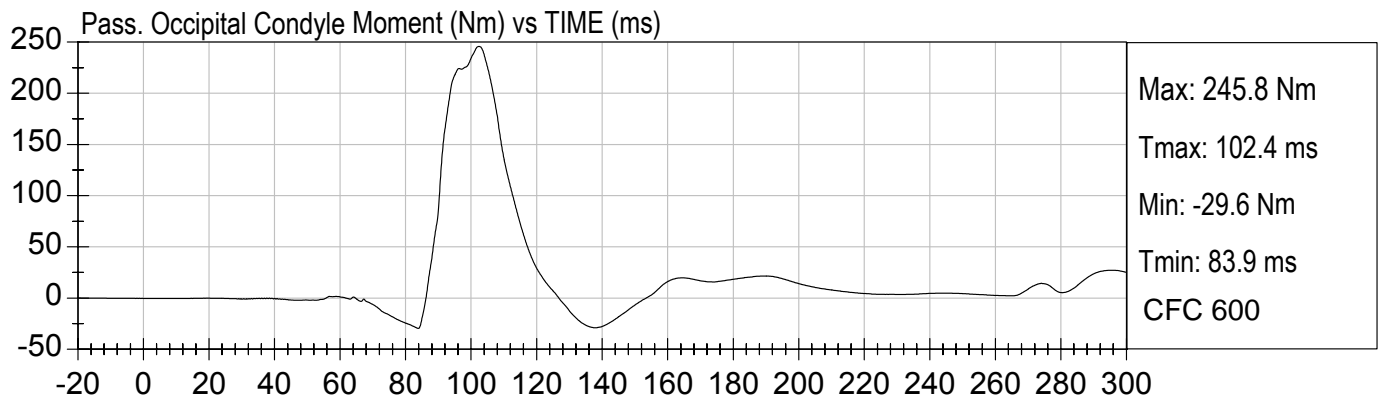
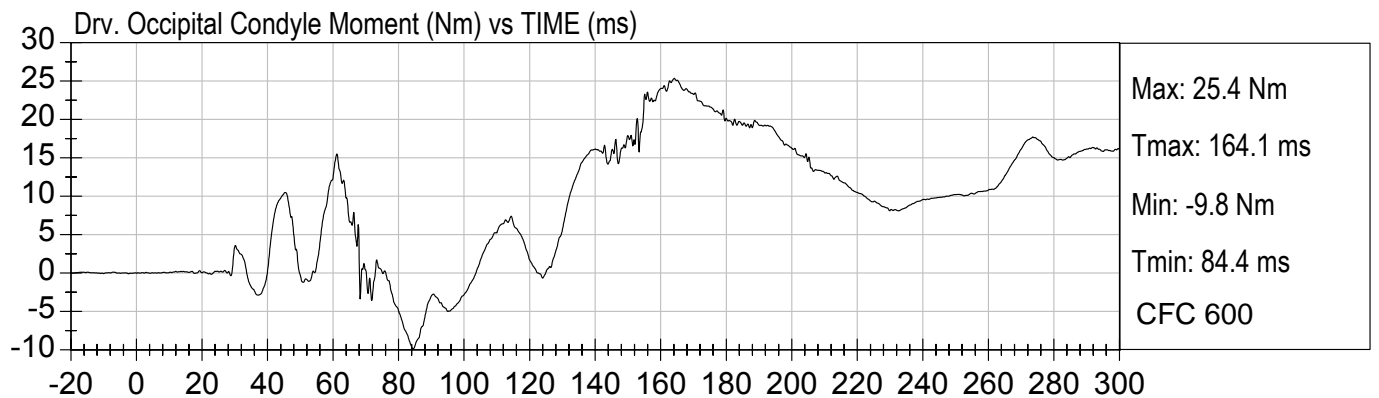


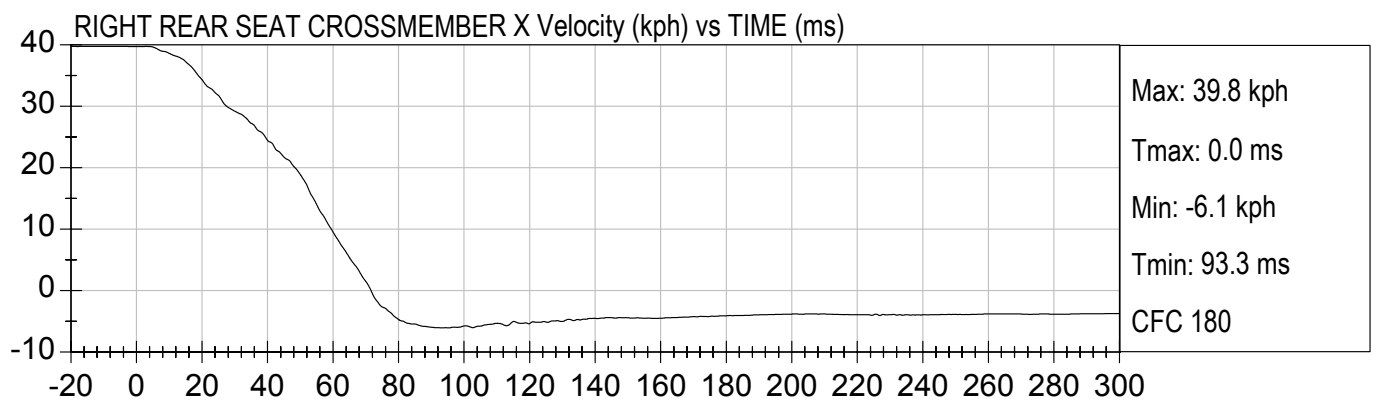
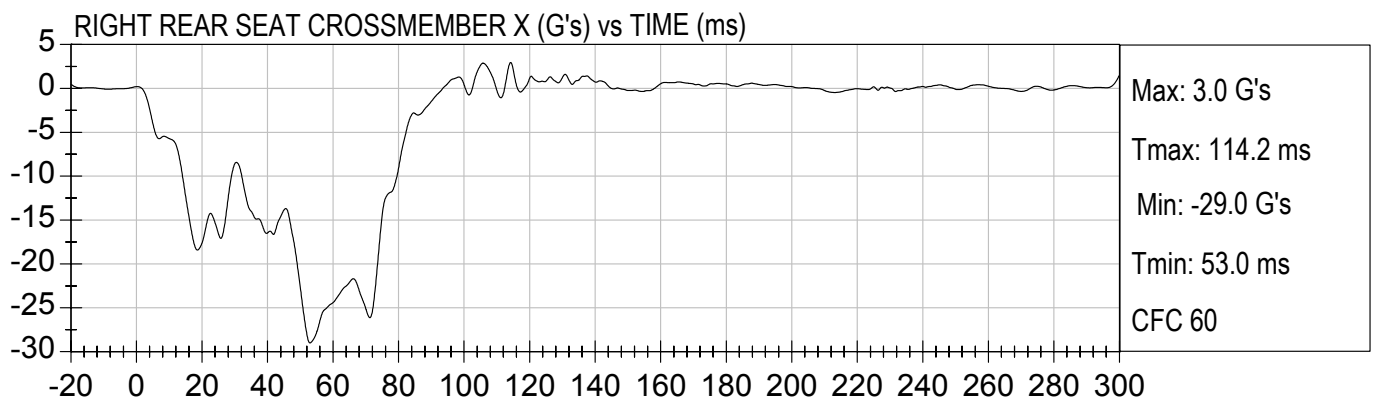
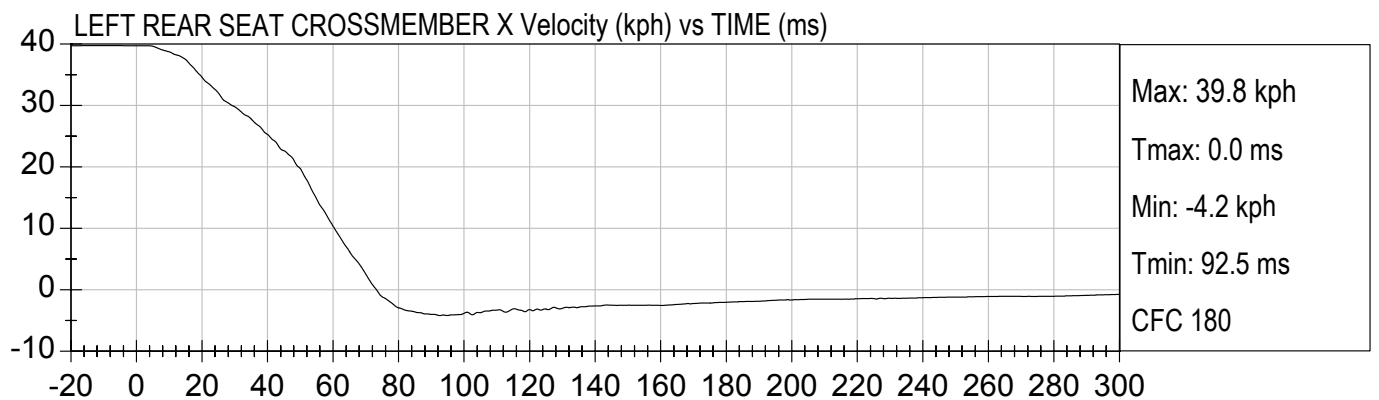
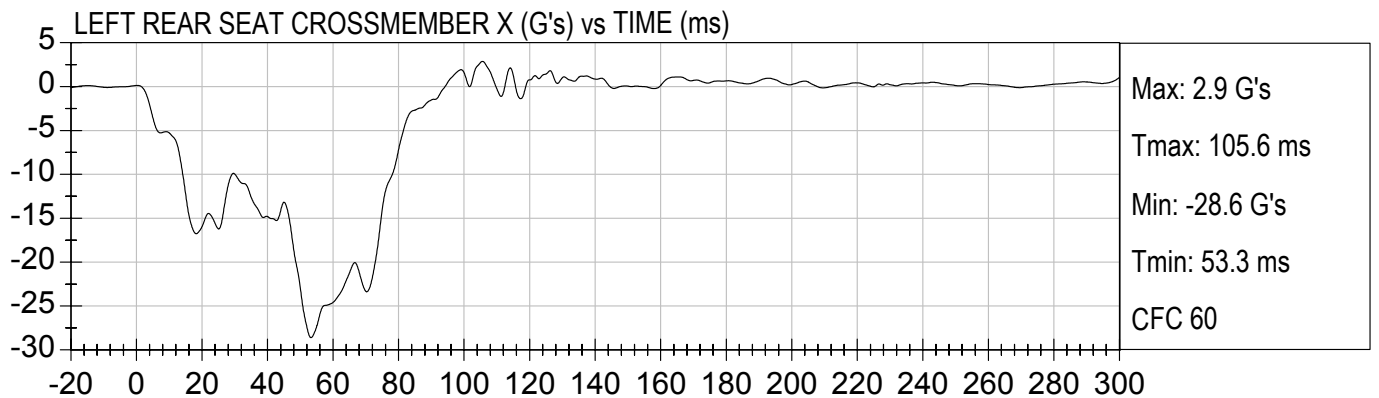
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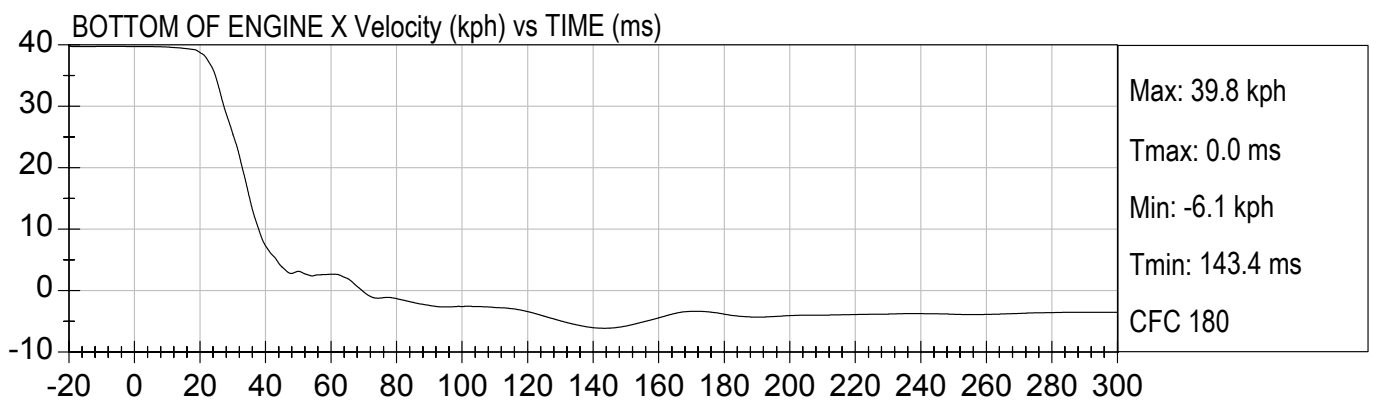
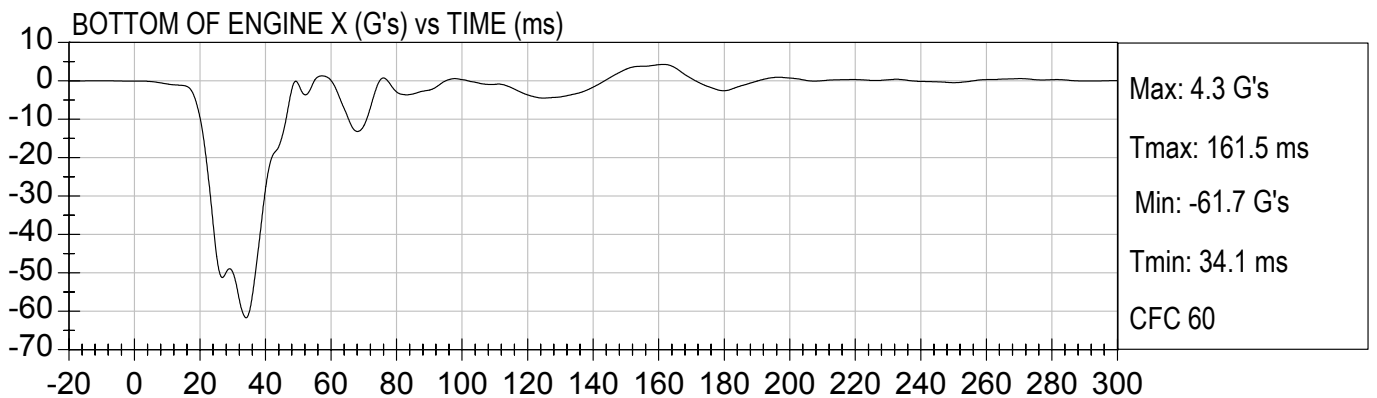
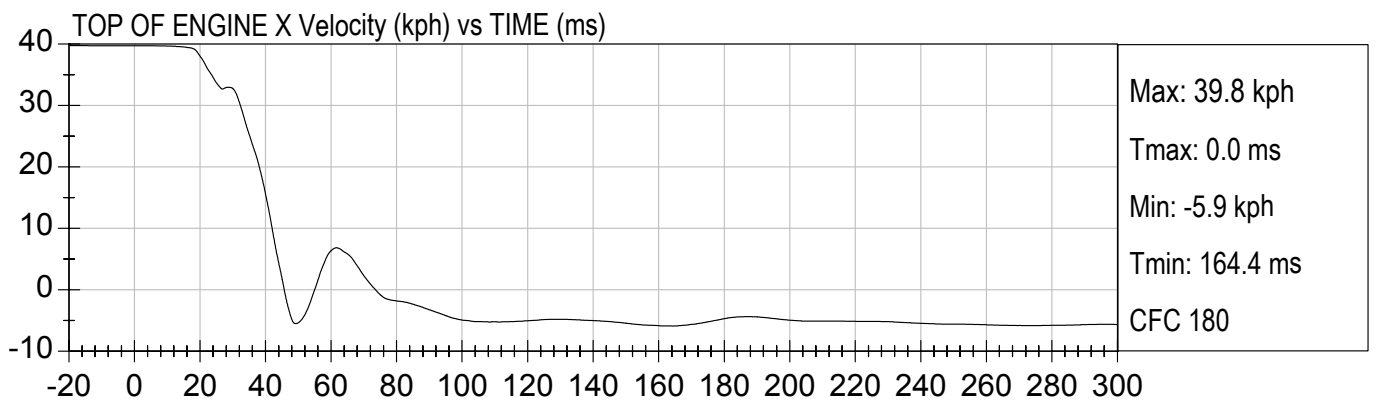
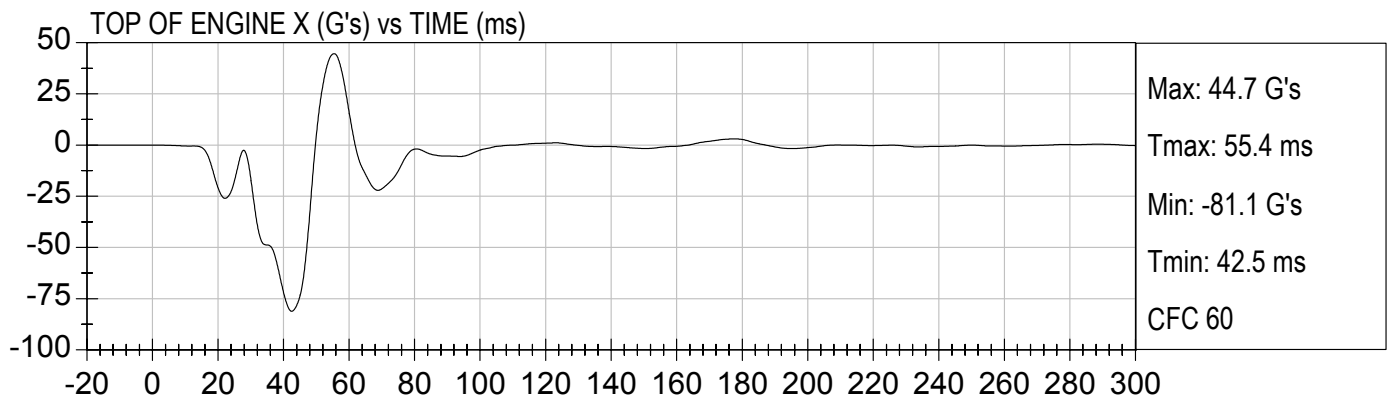


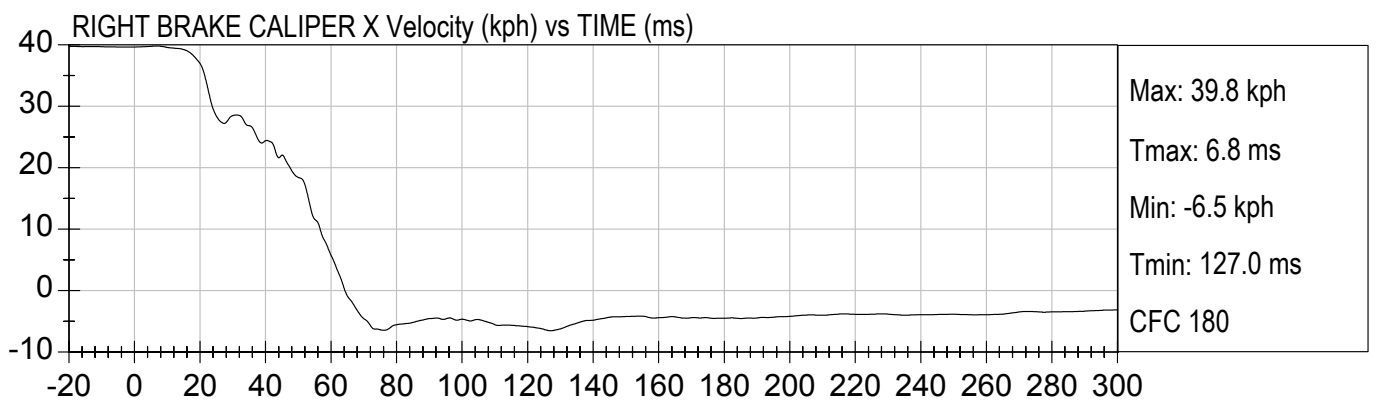
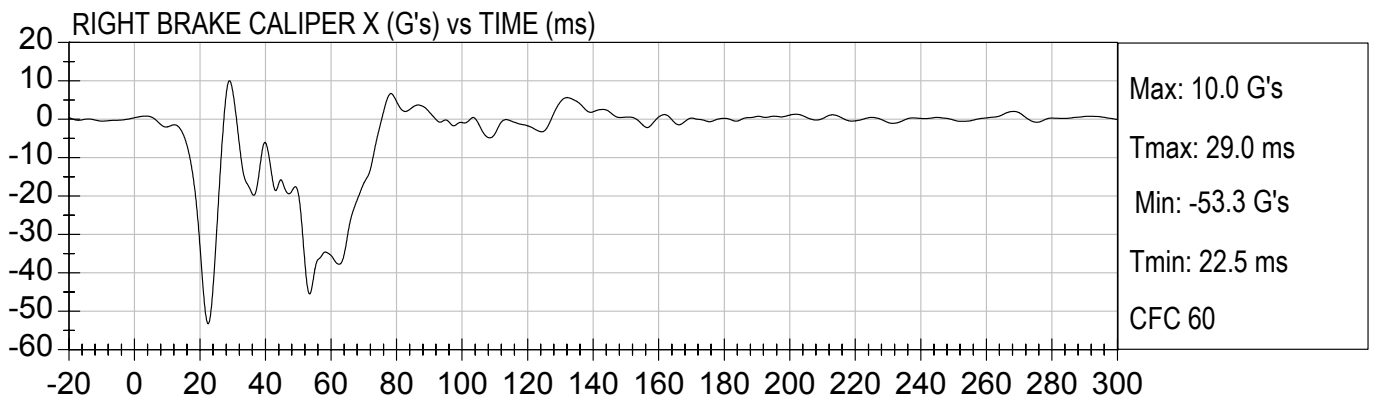
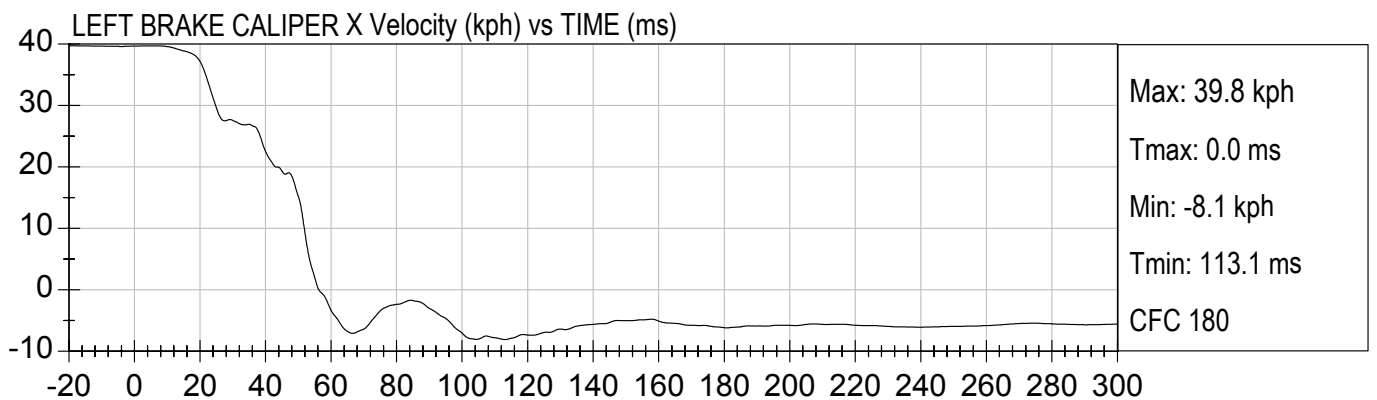
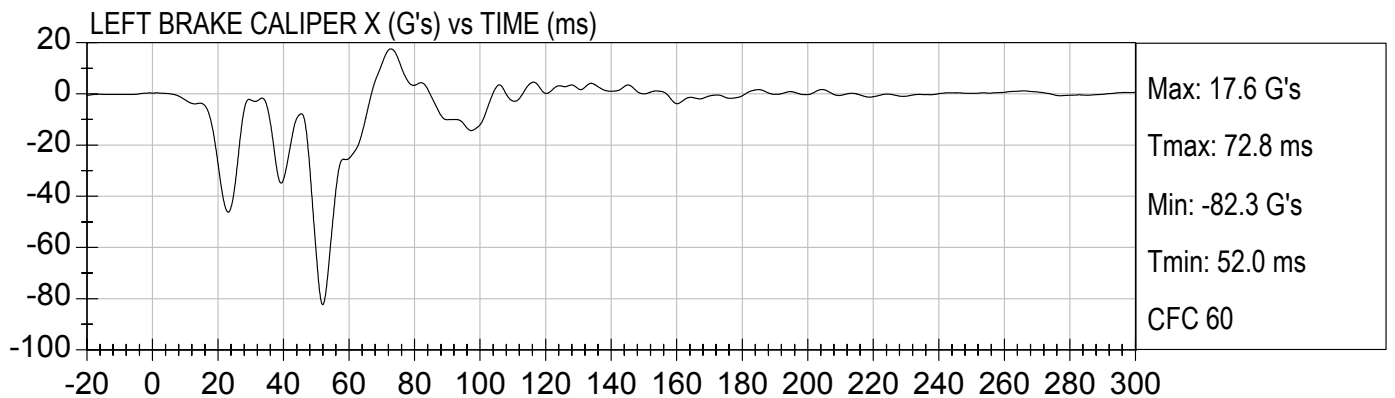
Center nij (NCE) () vs TIME (ms)

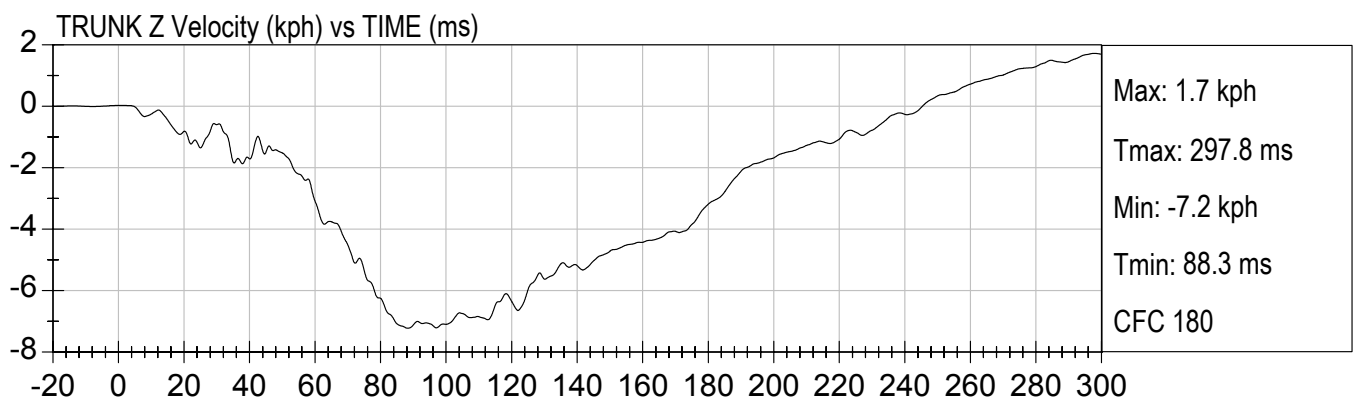
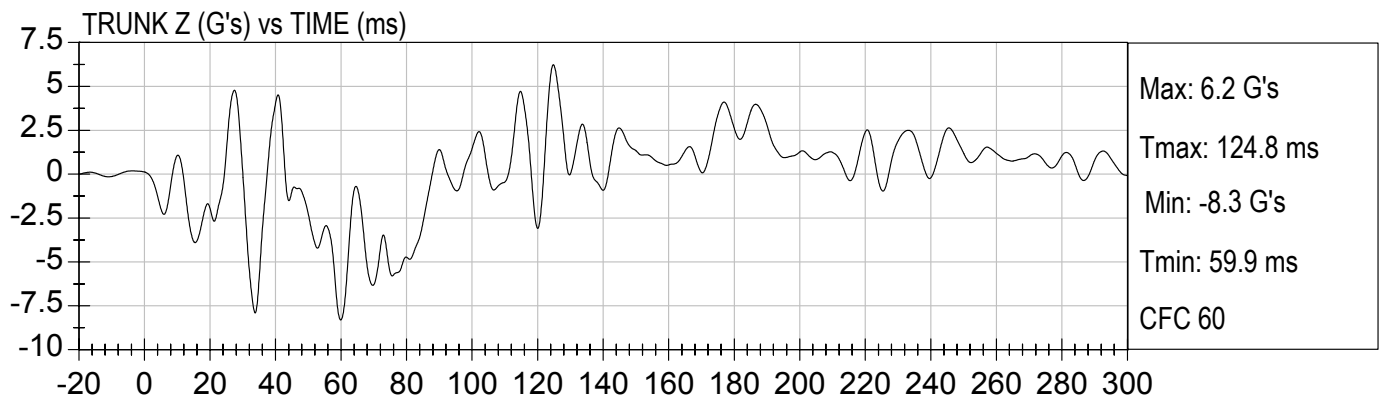
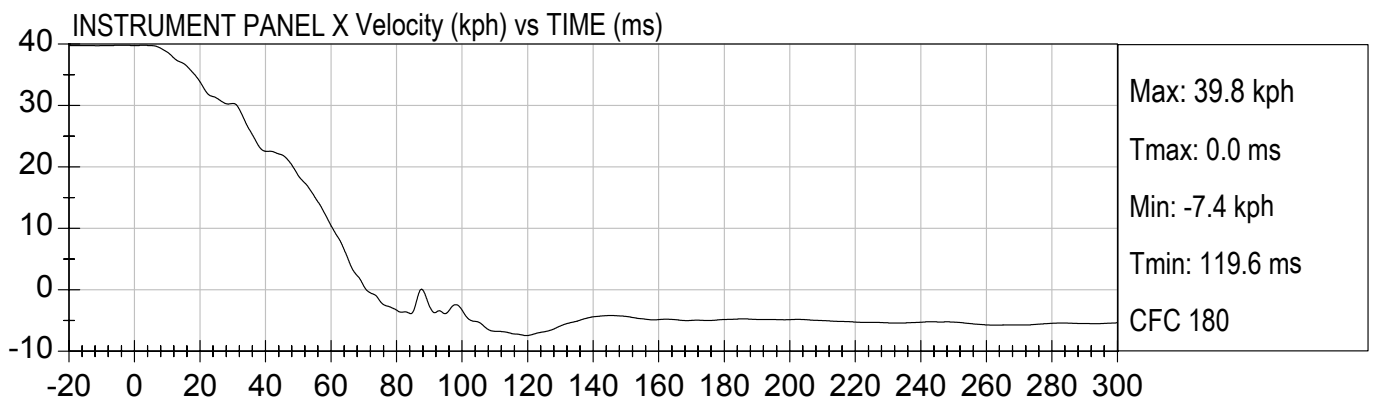
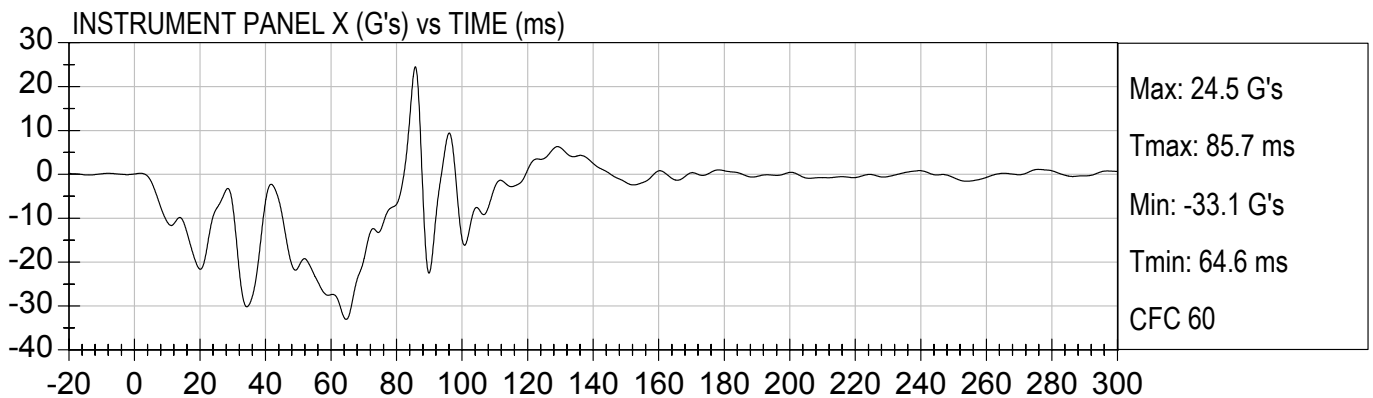






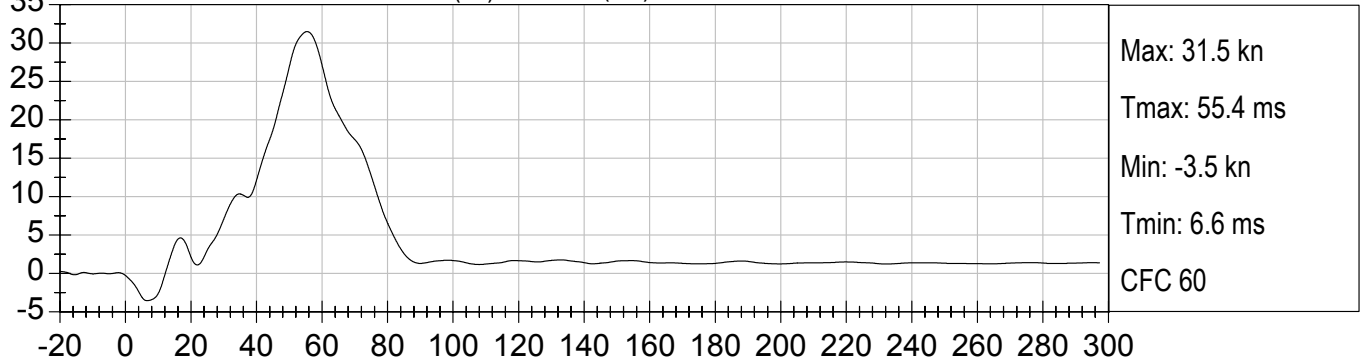




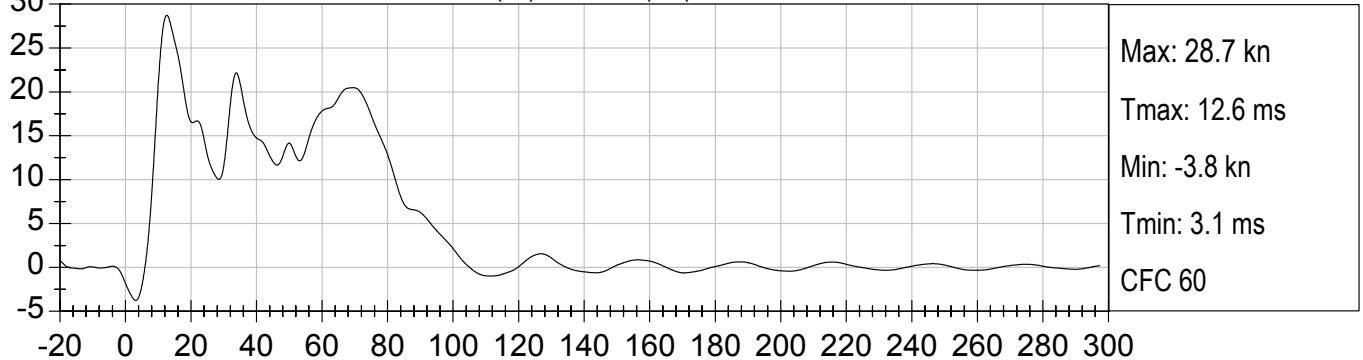




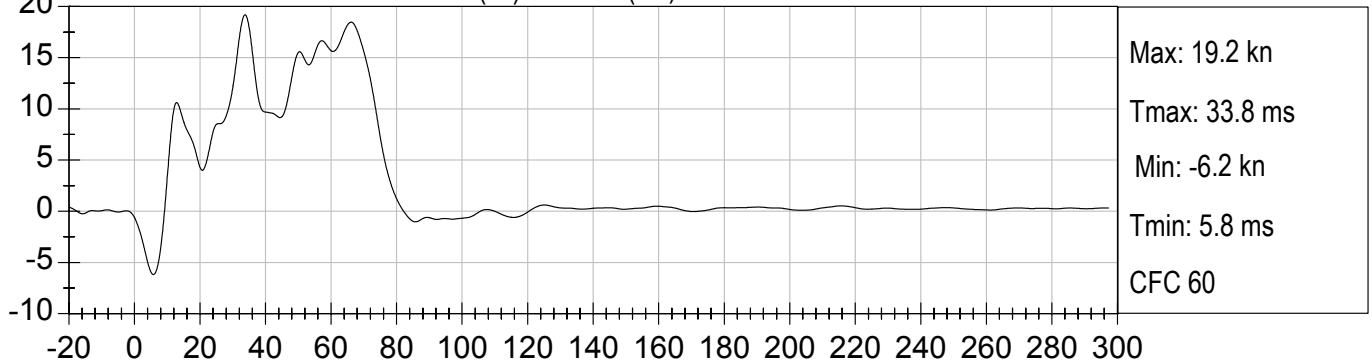
BARRIER FORCE - UPPER LEFT (kn) vs TIME (ms)



BARRIER FORCE - UPPER CENTER (kn) vs TIME (ms)

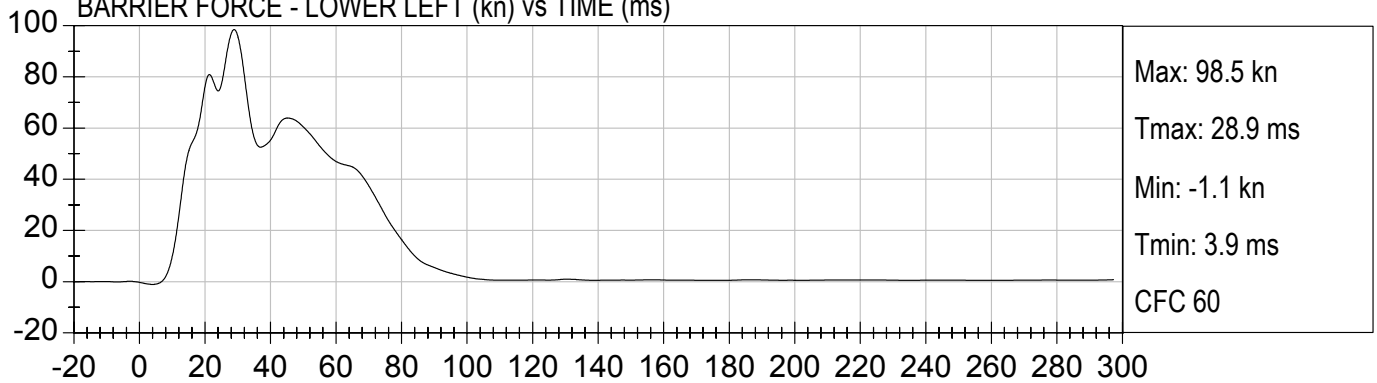


BARRIER FORCE - UPPER RIGHT (kn) vs TIME (ms)

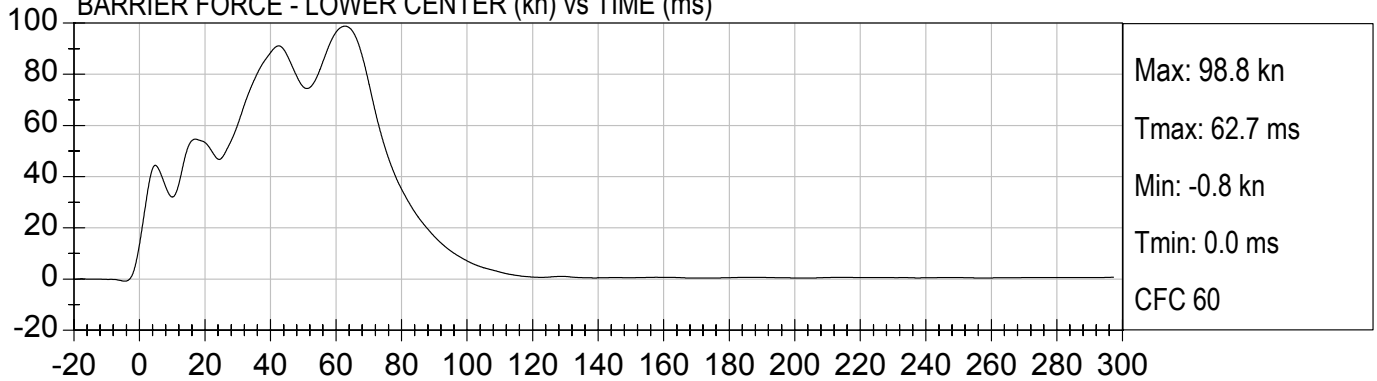




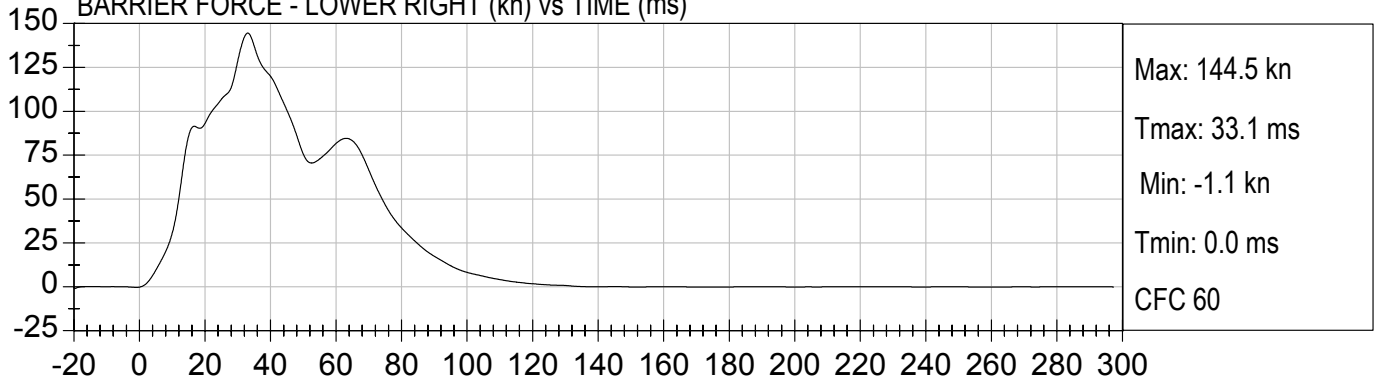
BARRIER FORCE - LOWER LEFT (kn) vs TIME (ms)



BARRIER FORCE - LOWER CENTER (kn) vs TIME (ms)

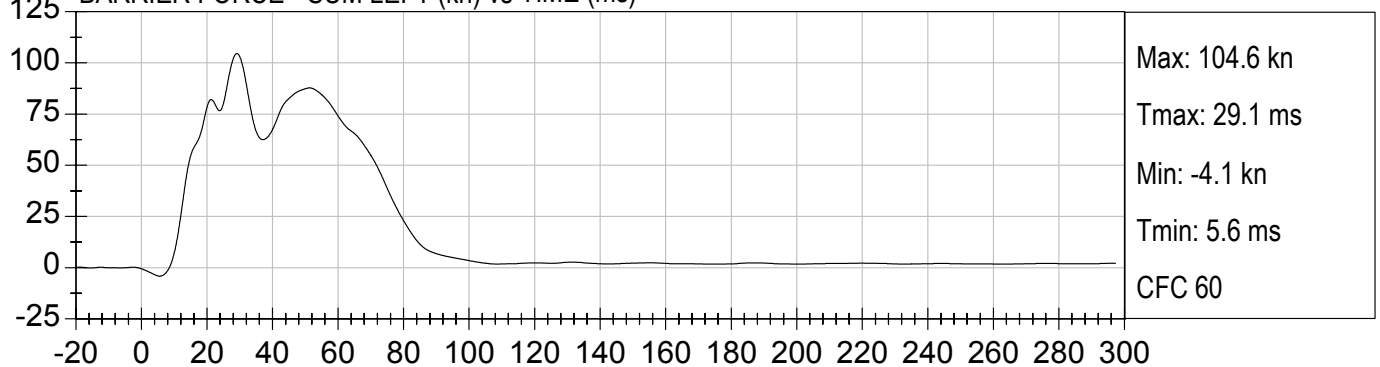


BARRIER FORCE - LOWER RIGHT (kn) vs TIME (ms)

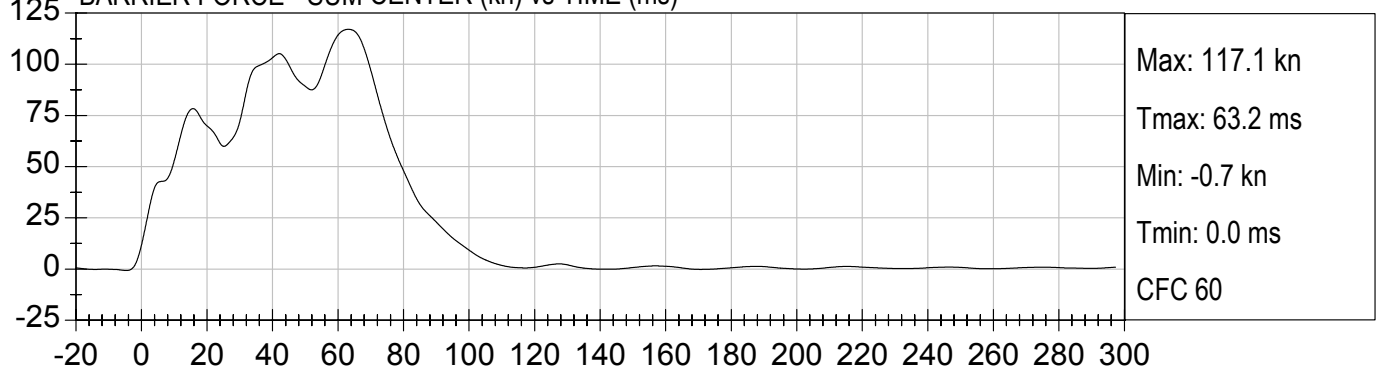




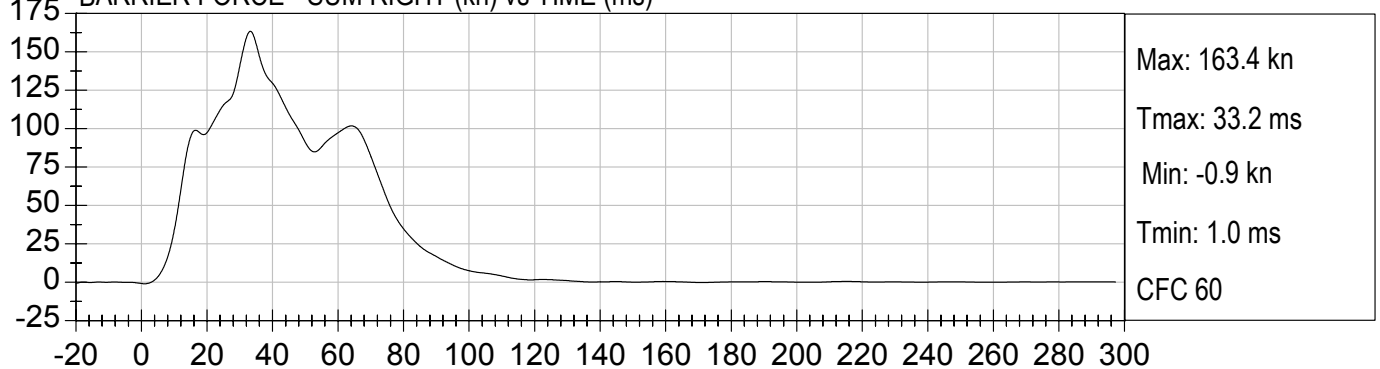
BARRIER FORCE - SUM LEFT (kn) vs TIME (ms)



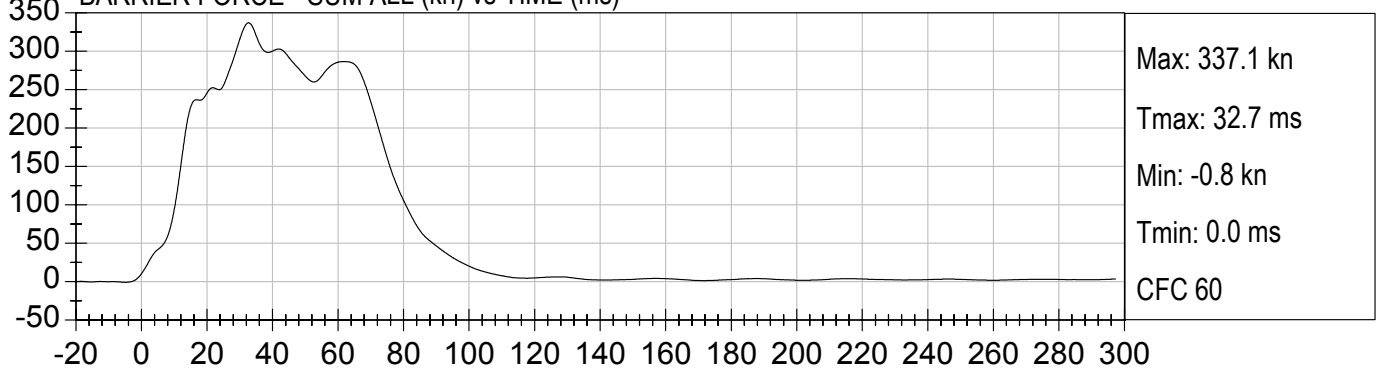
BARRIER FORCE - SUM CENTER (kn) vs TIME (ms)



BARRIER FORCE - SUM RIGHT (kn) vs TIME (ms)



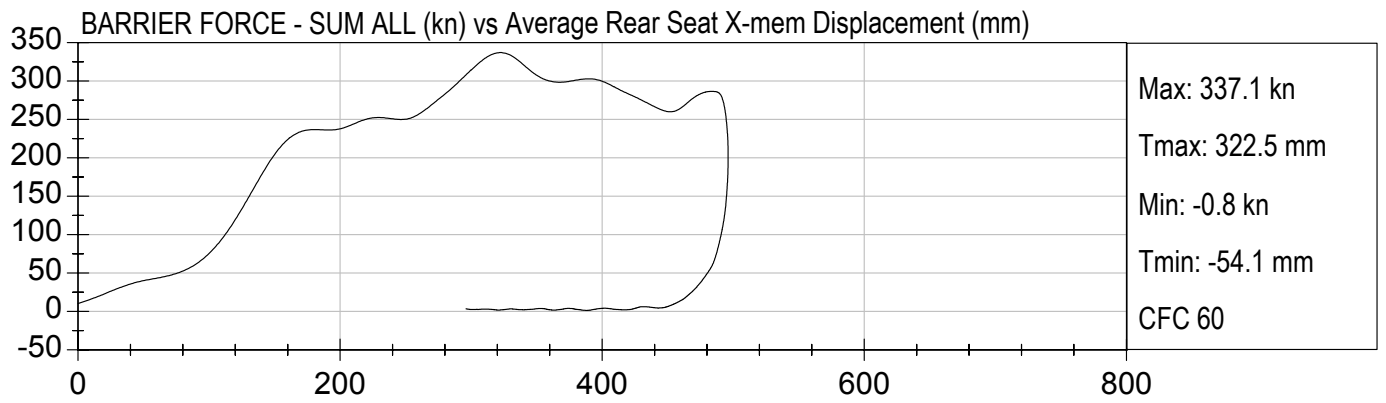
BARRIER FORCE - SUM ALL (kn) vs TIME (ms)





25MPH FRONTAL IMPACT
2004 HYUNDAI ELANTRA (C40510)

Test Date: 08/27/04
Speed: 24.7 mph (39.8 km/h)



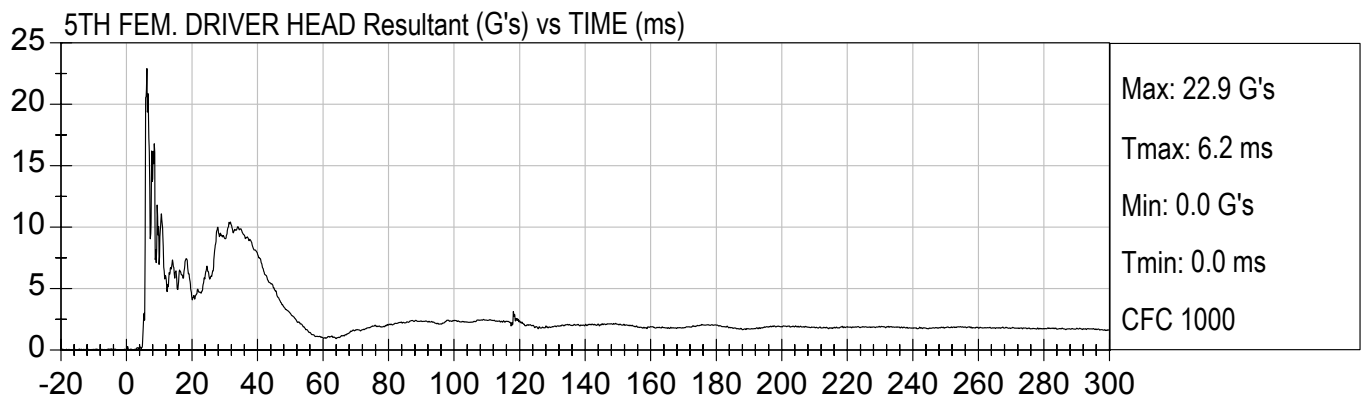
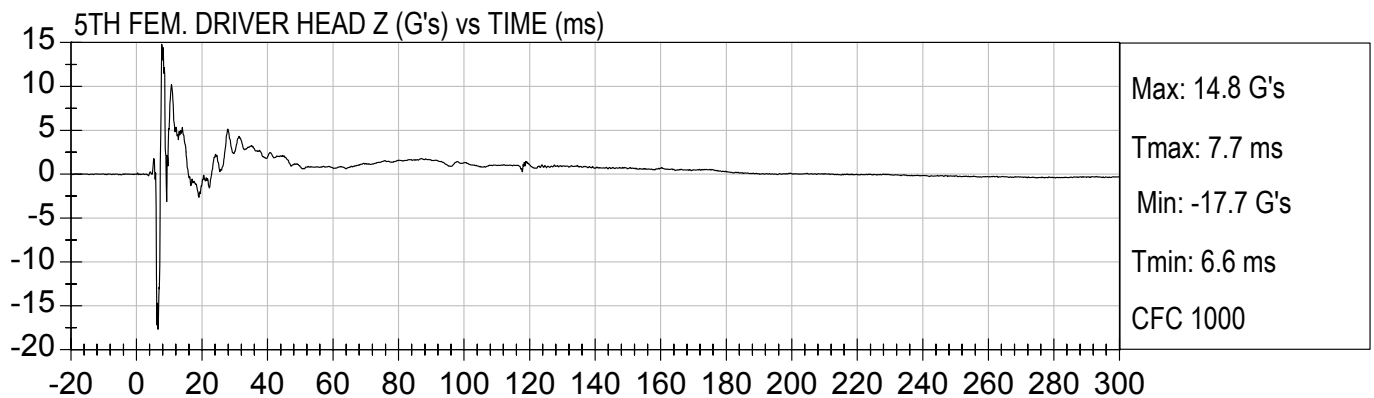
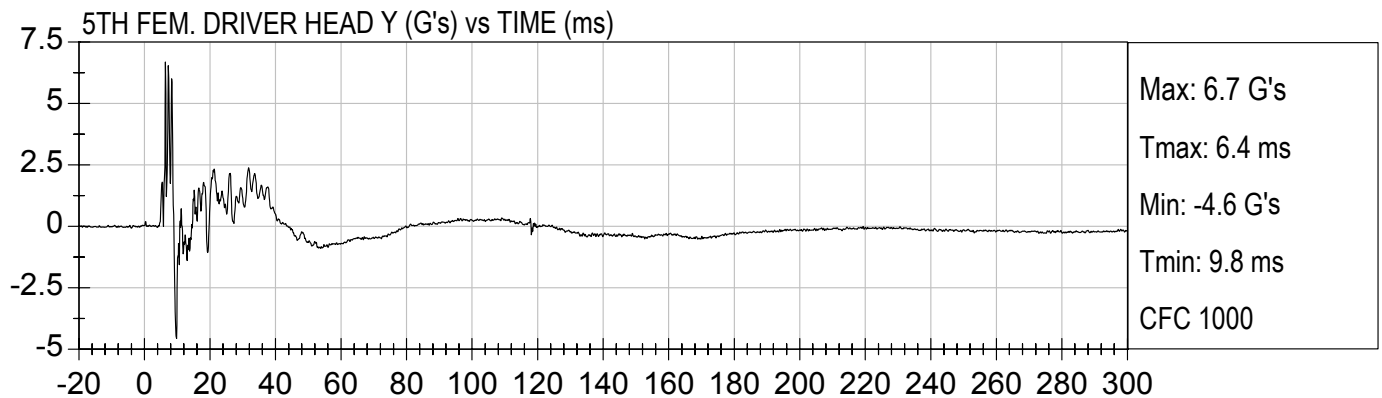
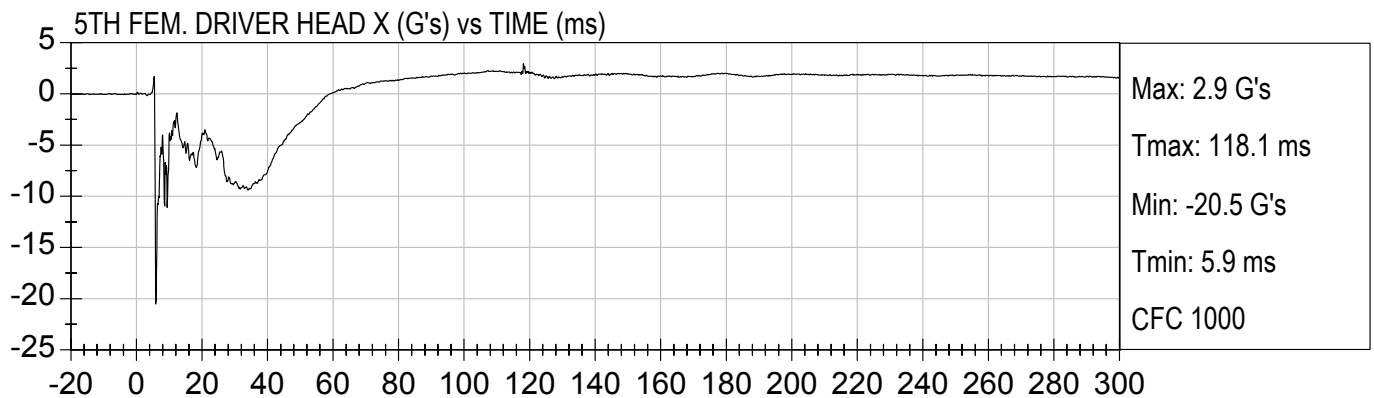
APPENDIX B
LOW RISK TEST DATA

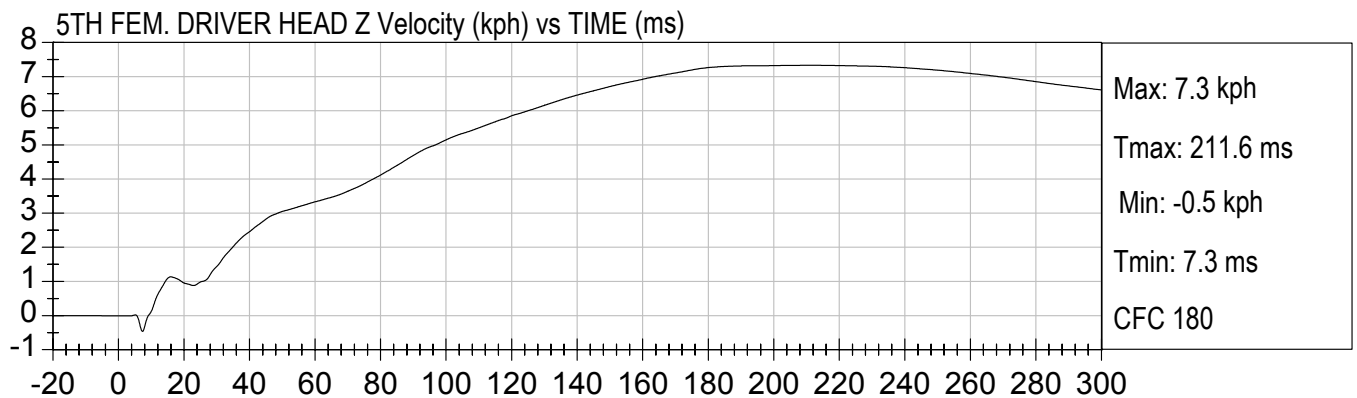
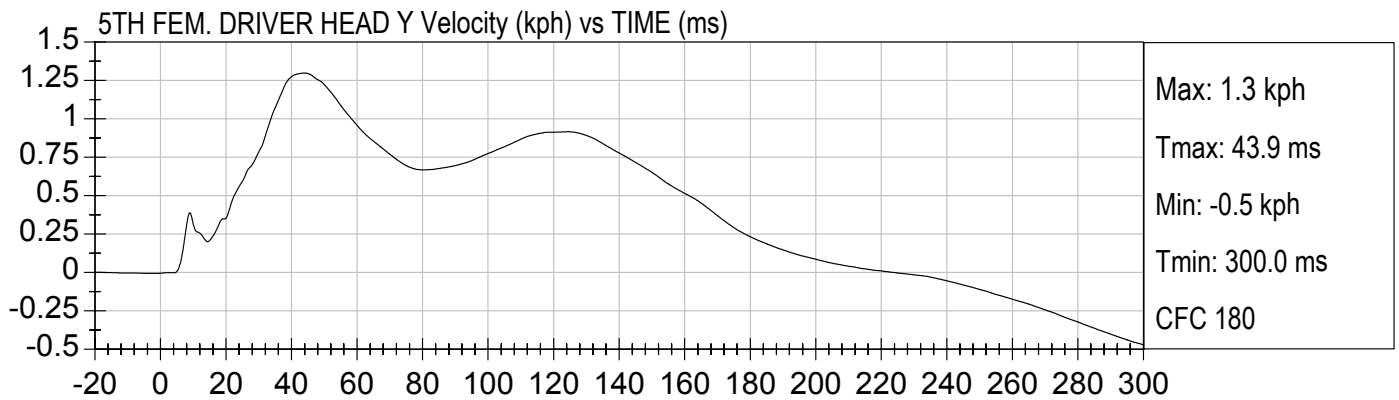
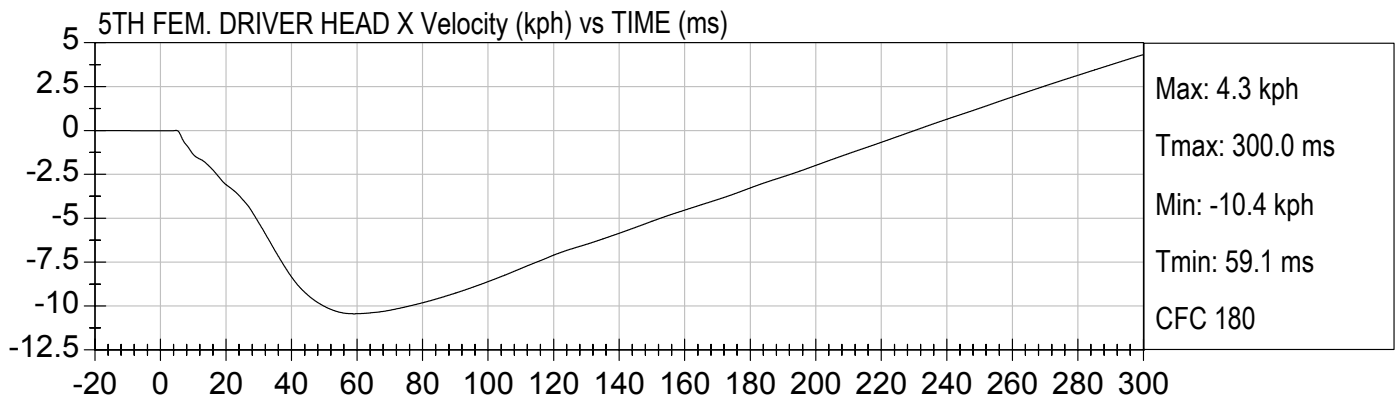
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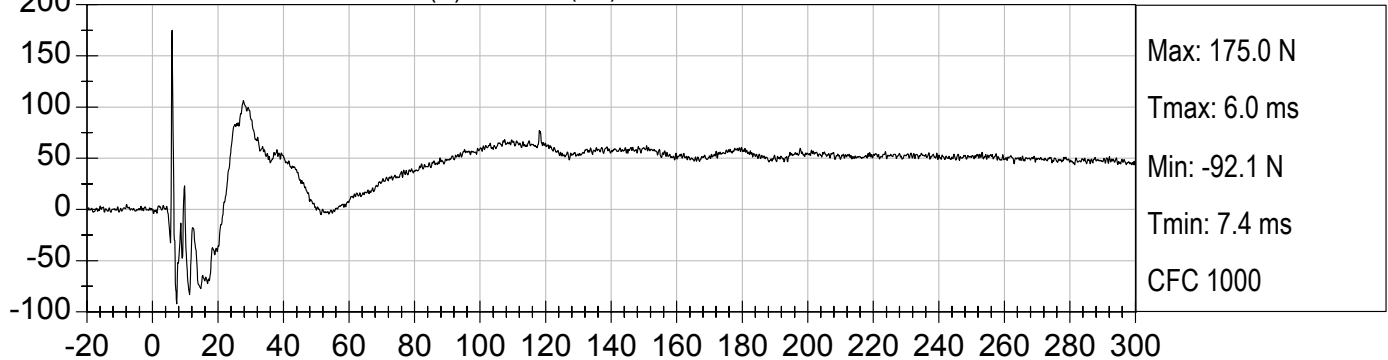
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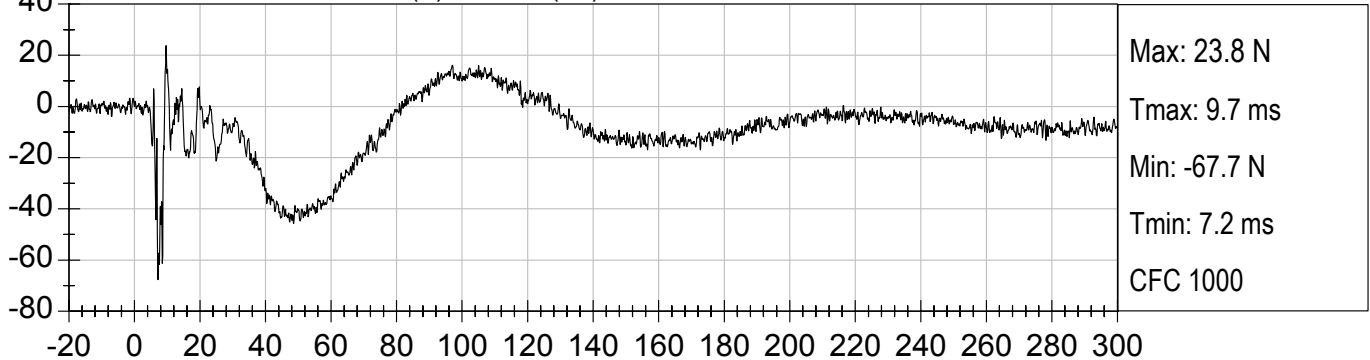




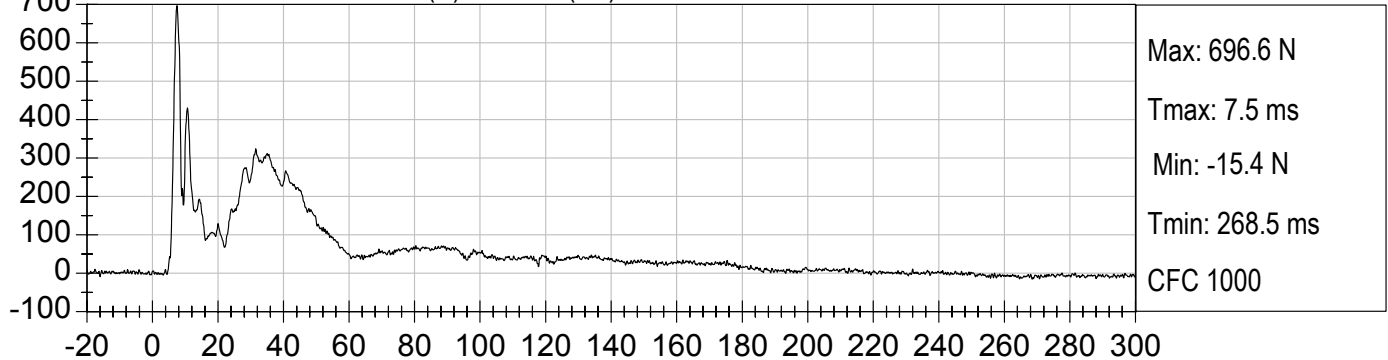
5TH FEM. DRIVER NECK FX (N) vs TIME (ms)



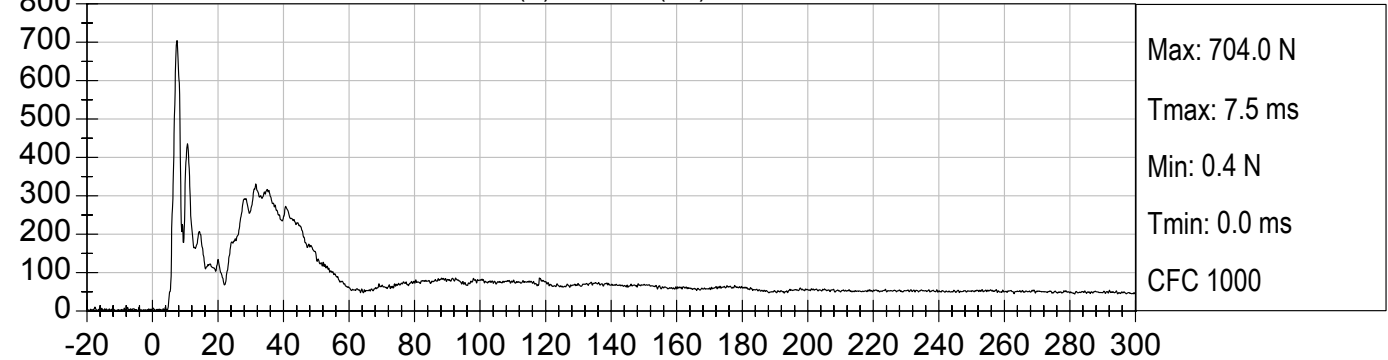
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5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)

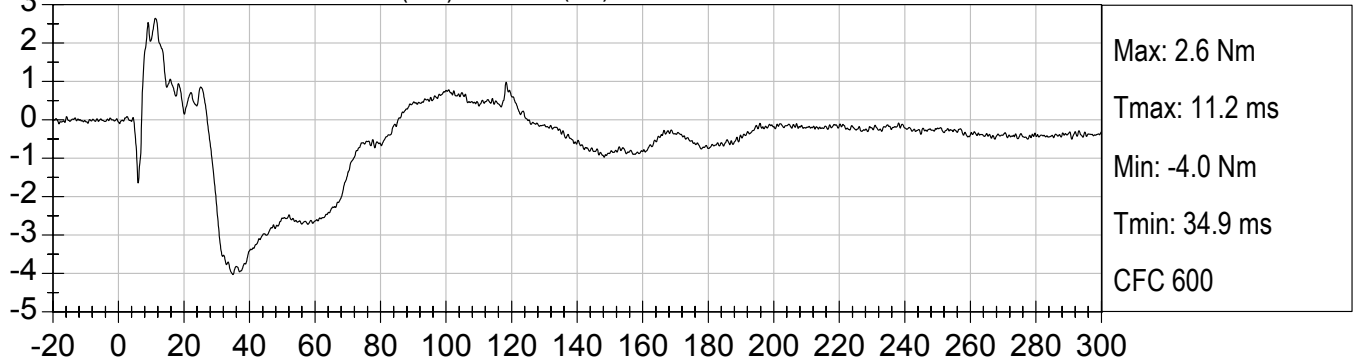


5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)

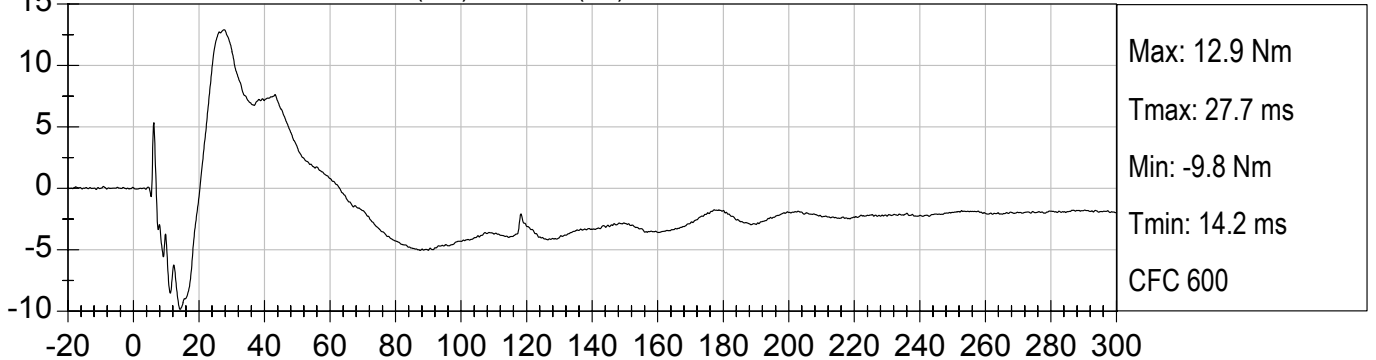




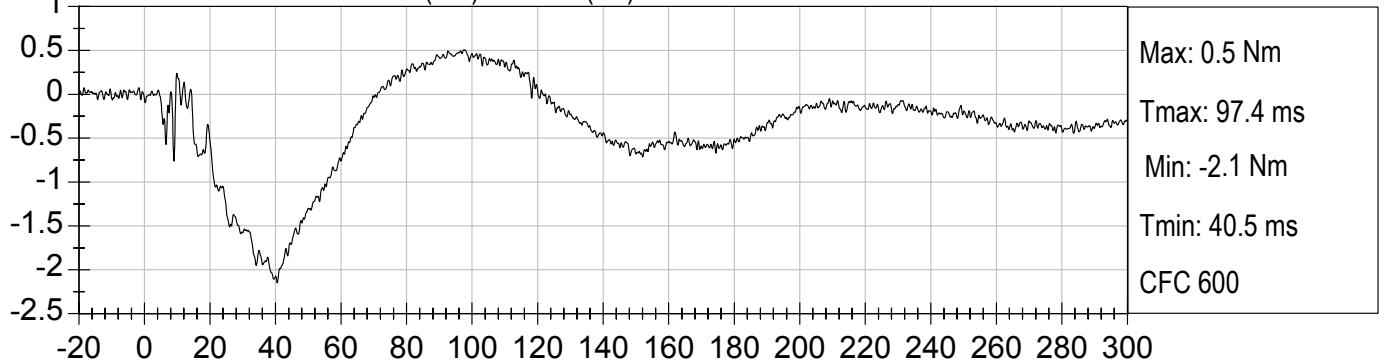
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



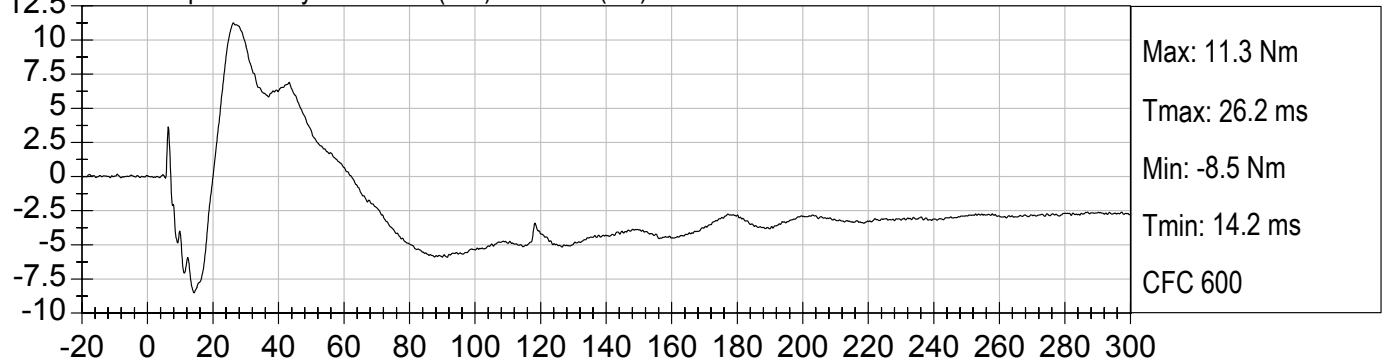
5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)

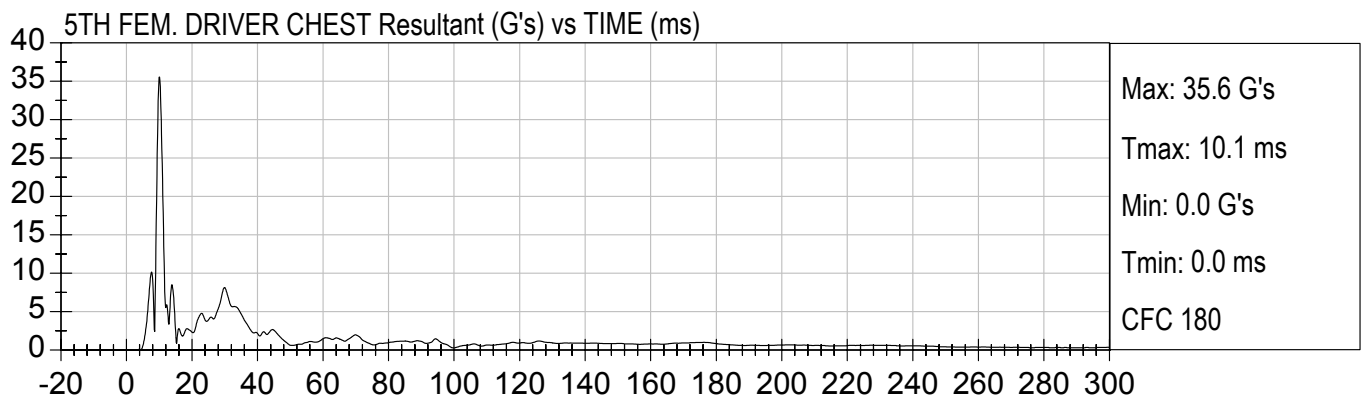
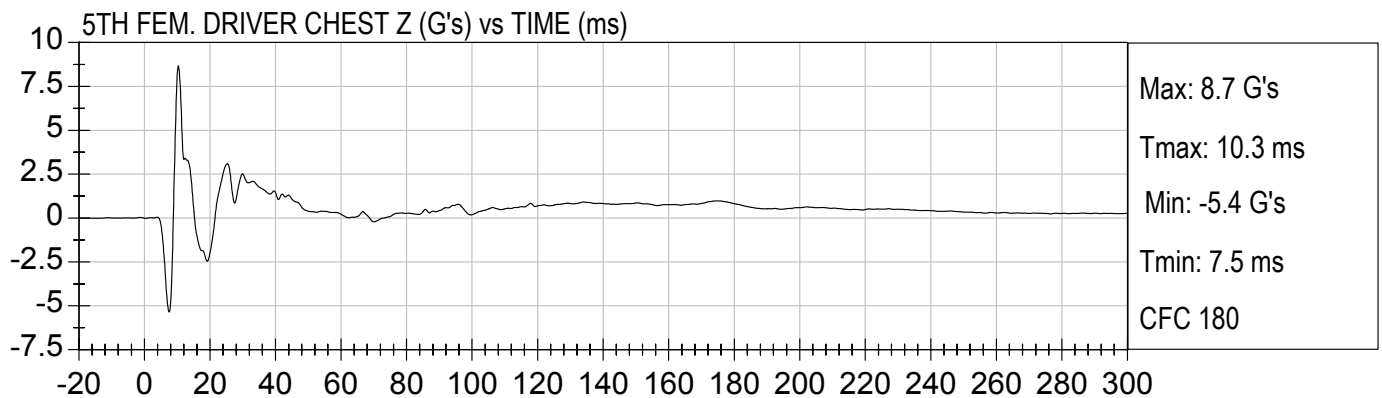
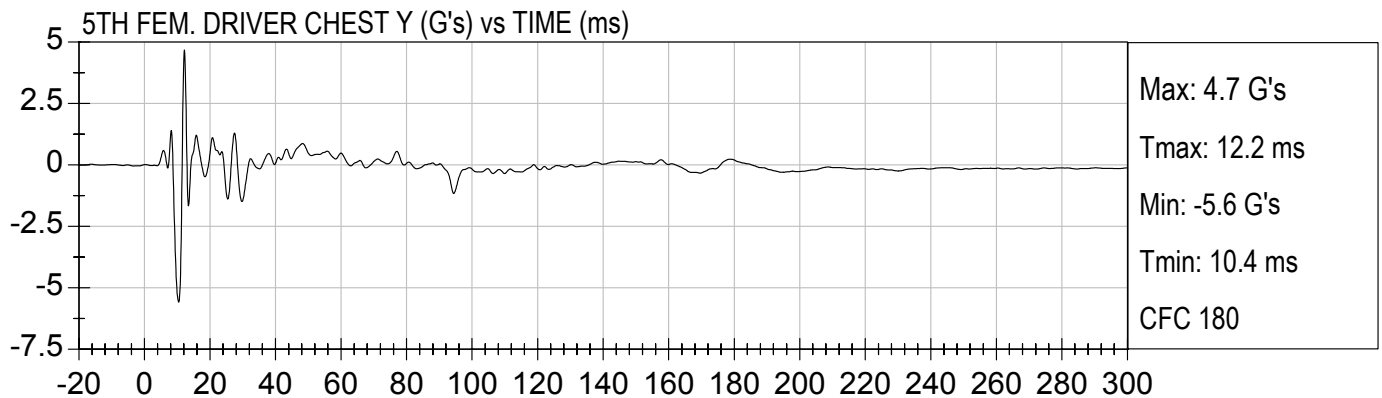
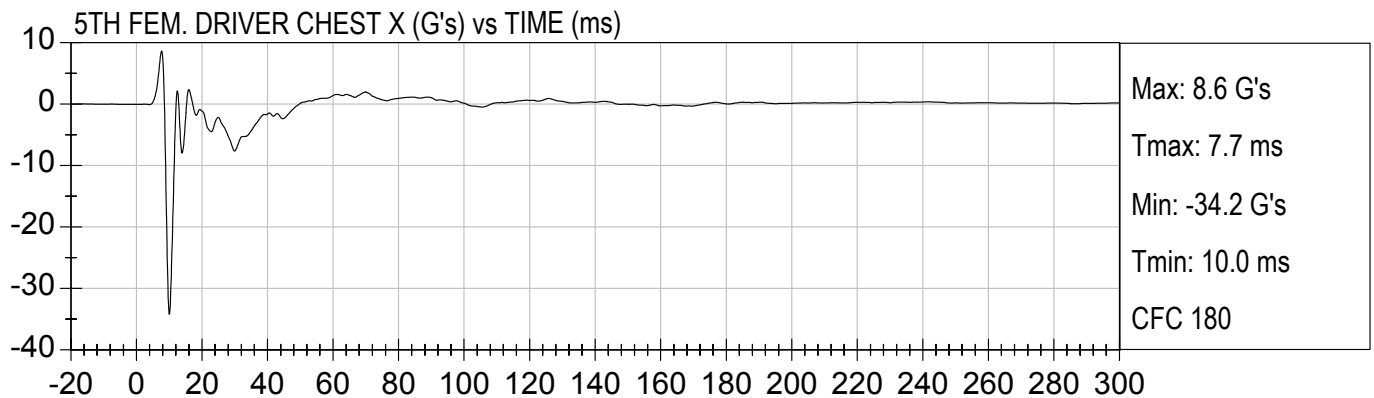


5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



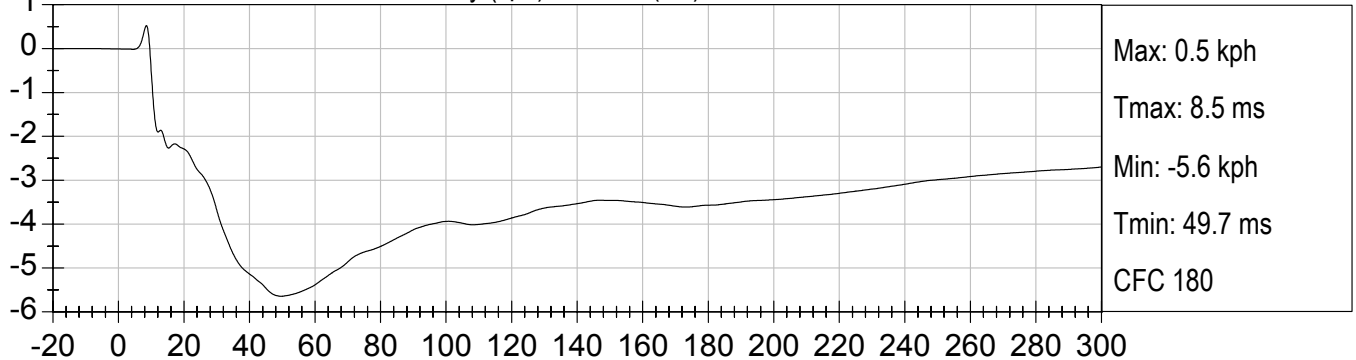
Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



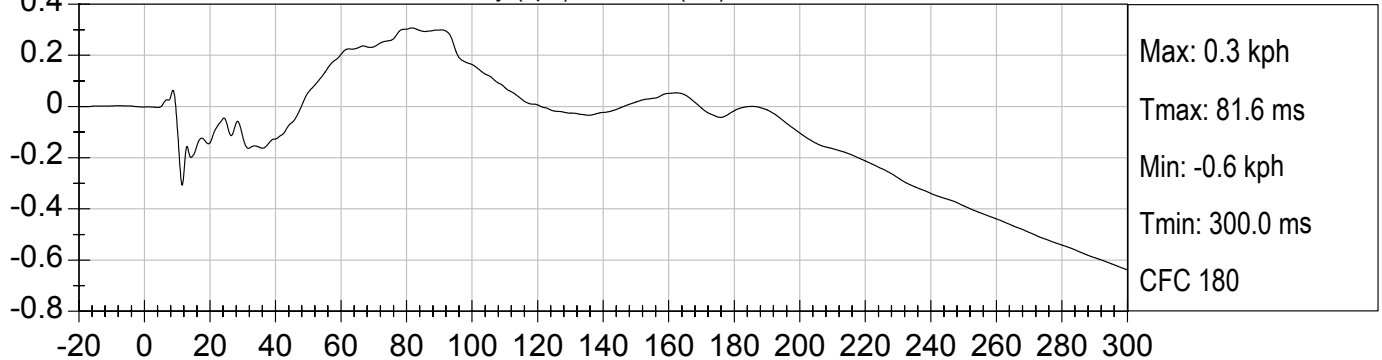




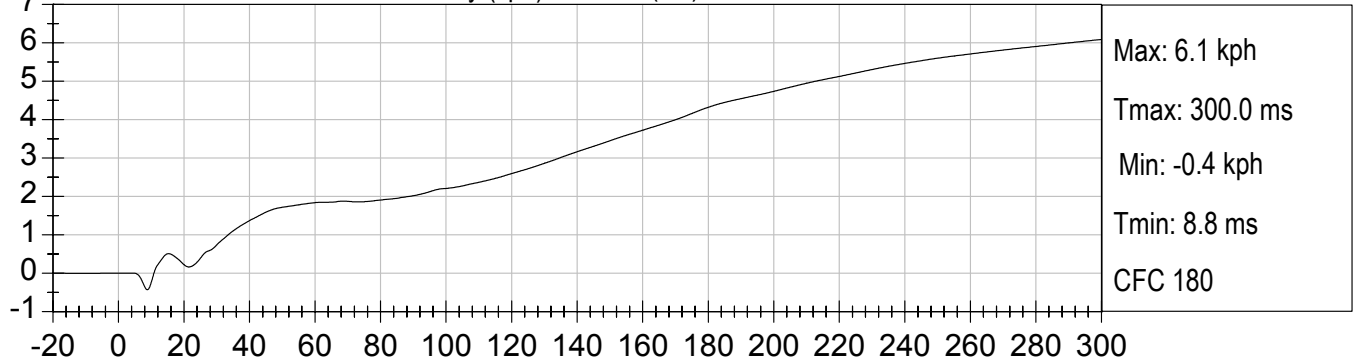
1 5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)



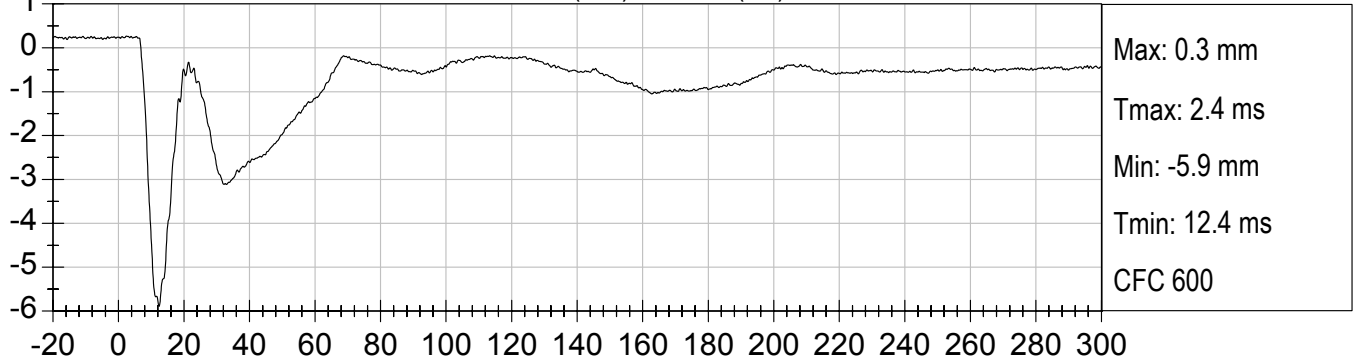
5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)



7 5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)

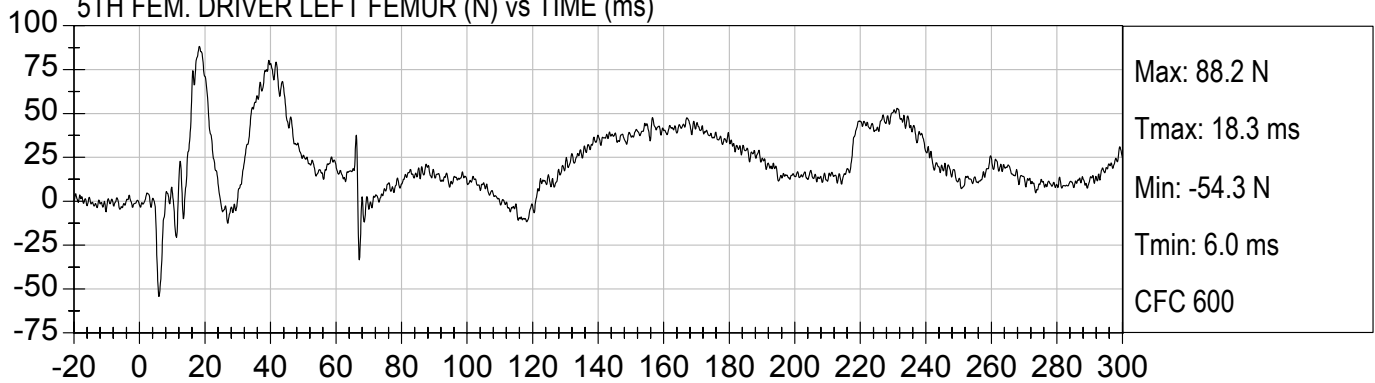


1 5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)

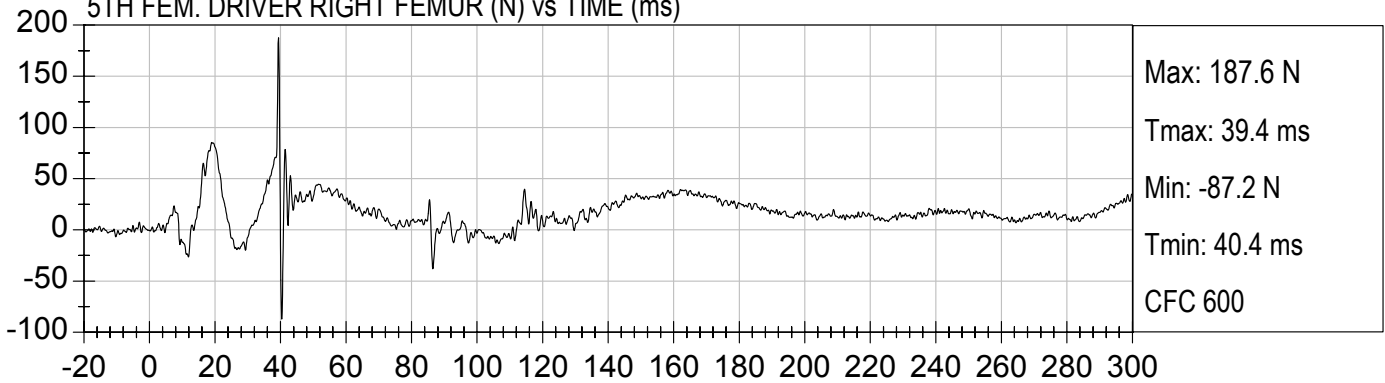




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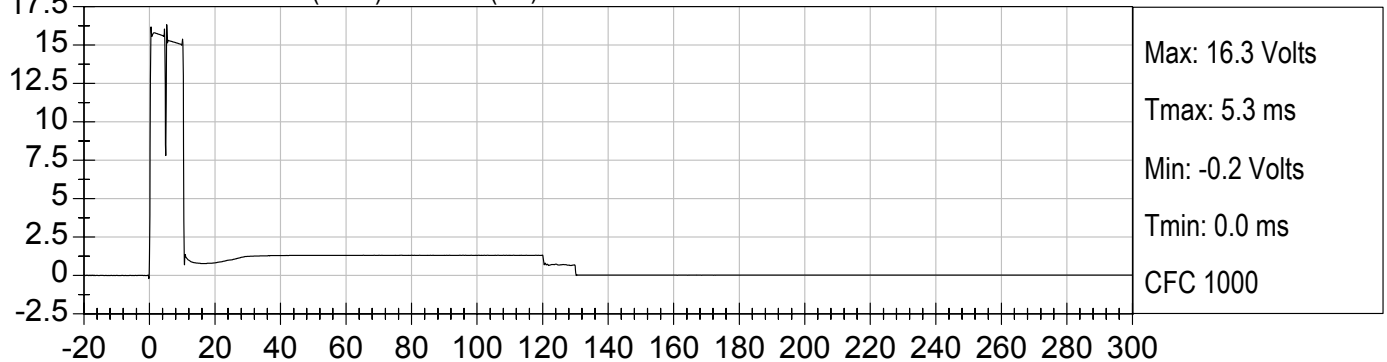


5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)

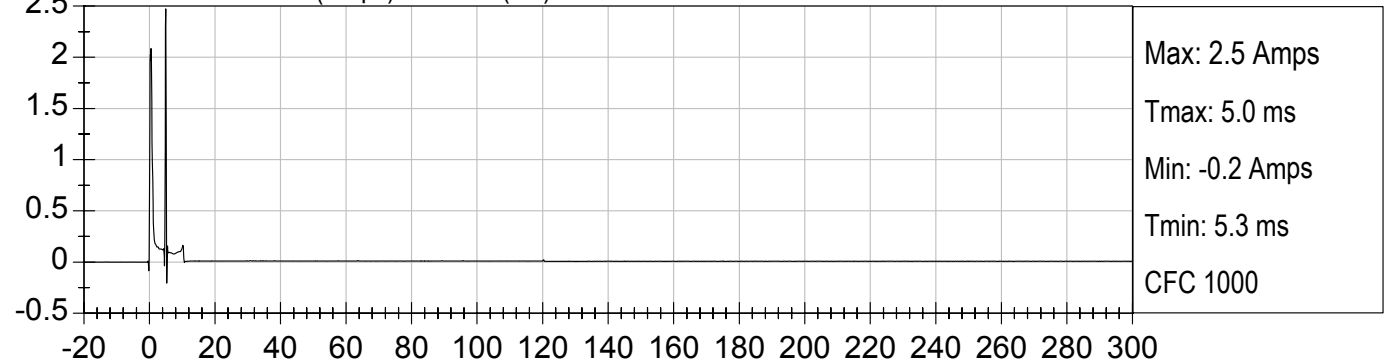




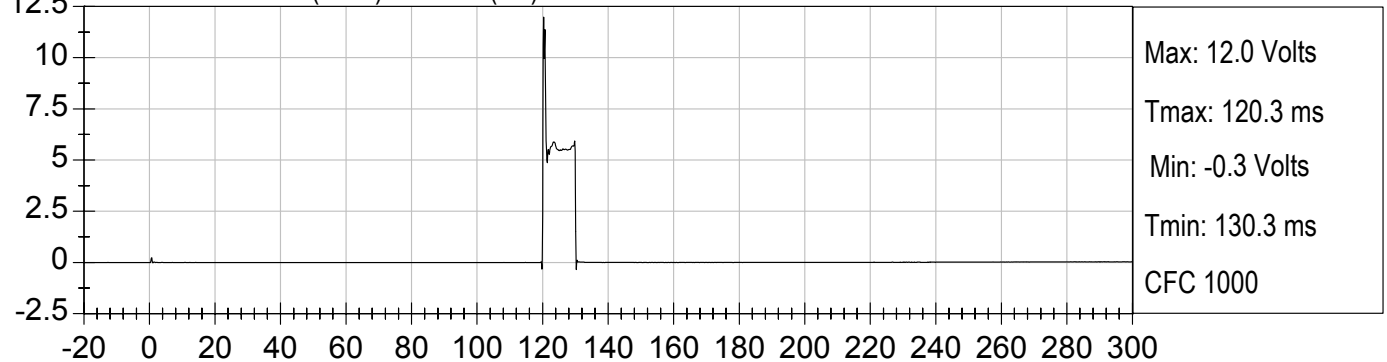
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



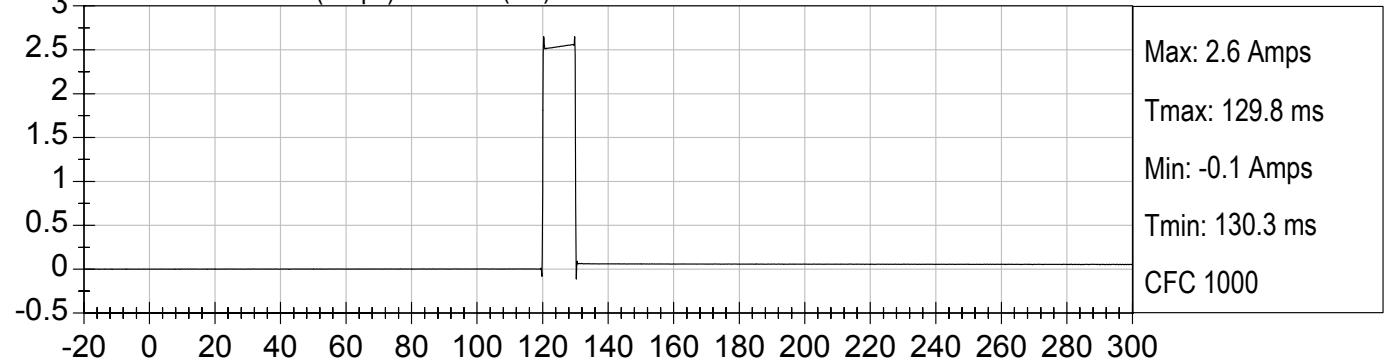
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)

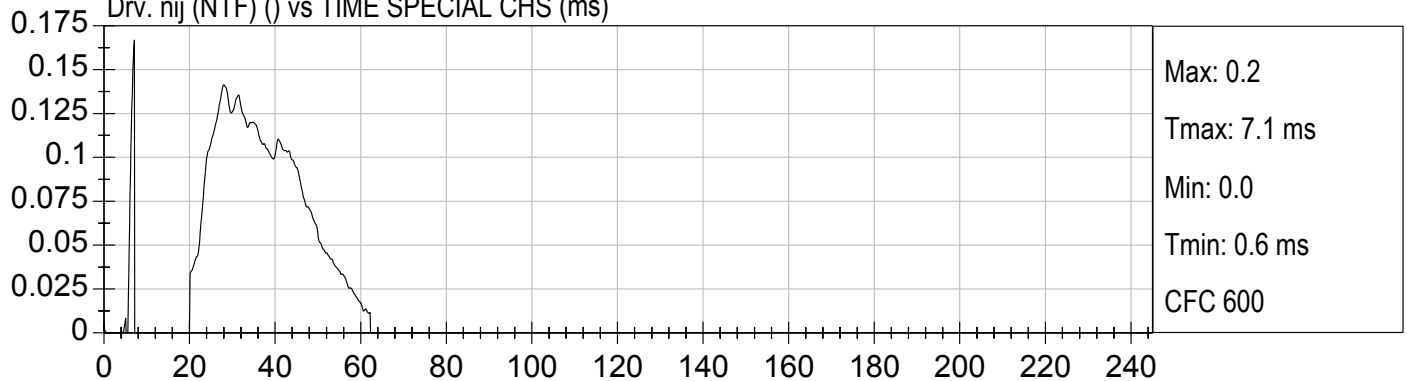


FIRE CURRENT #2 (Amps) vs TIME (ms)

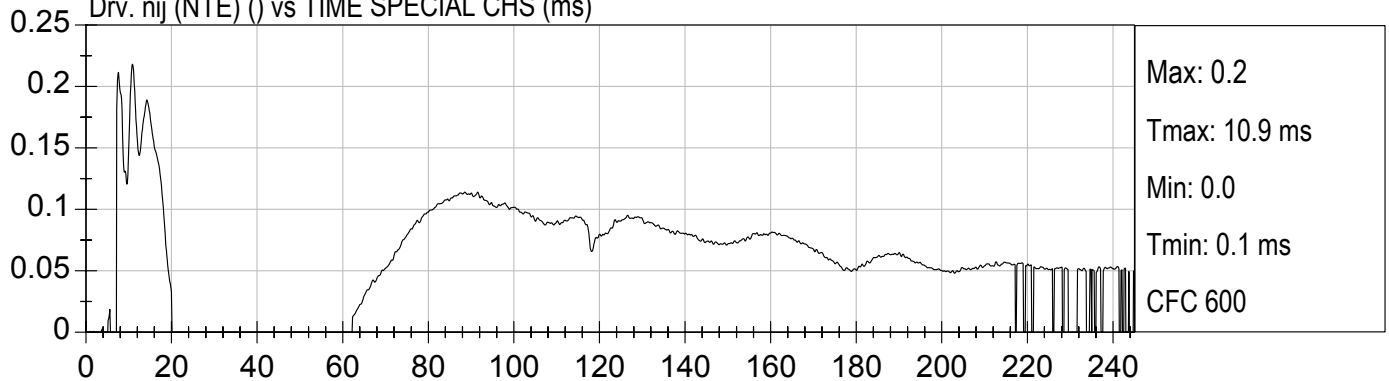




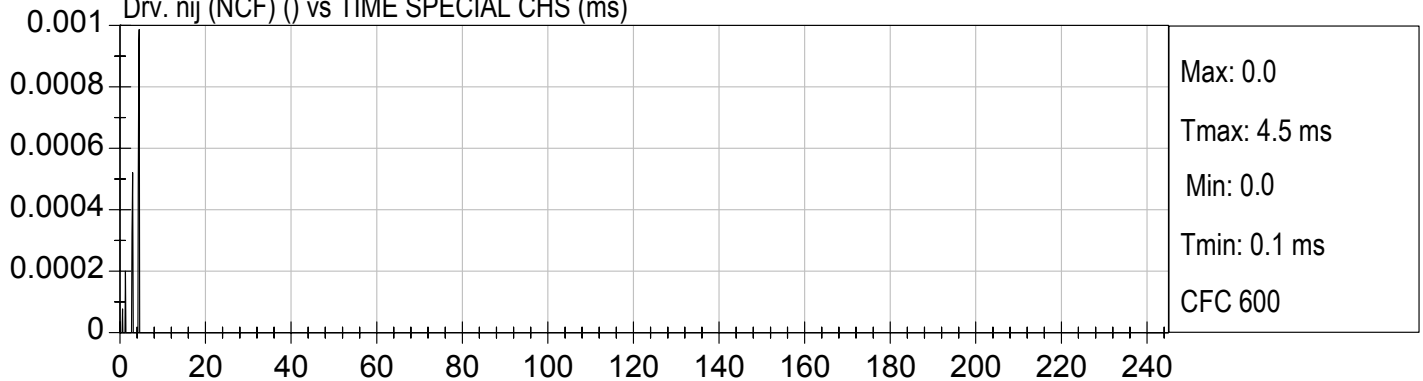
Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)



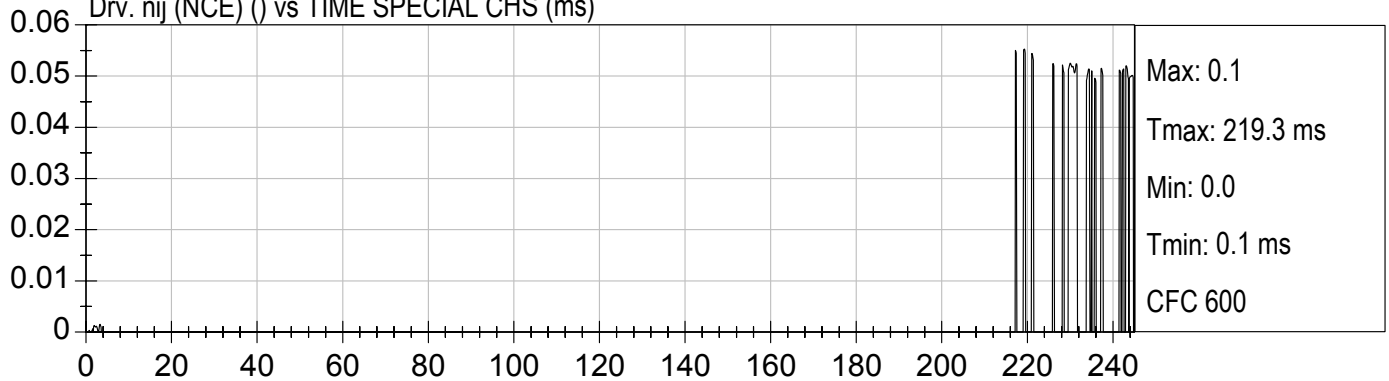
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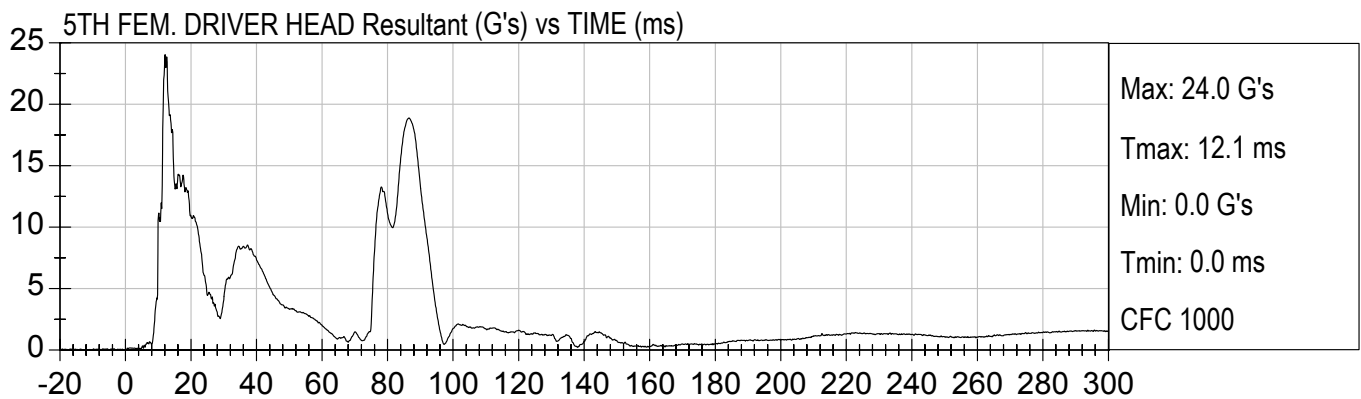
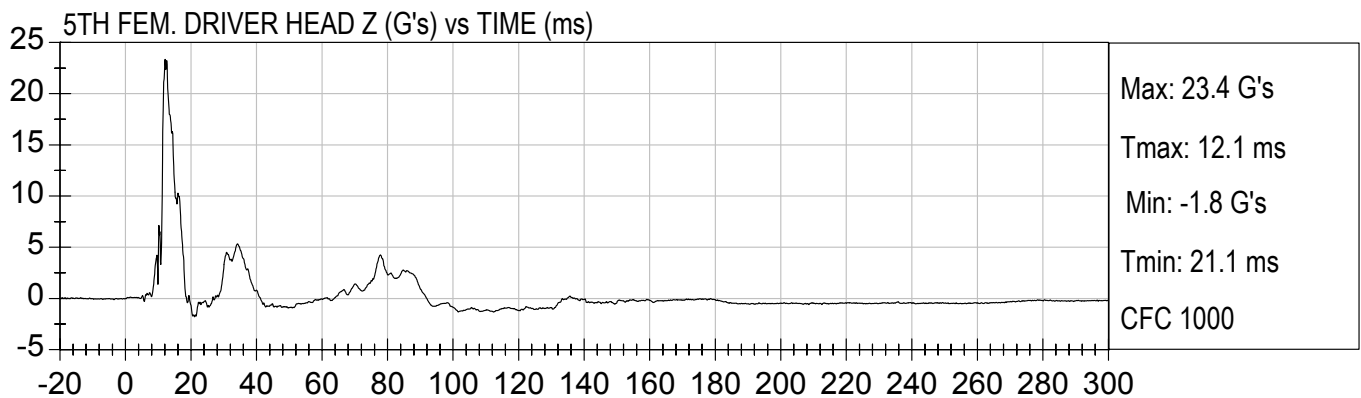
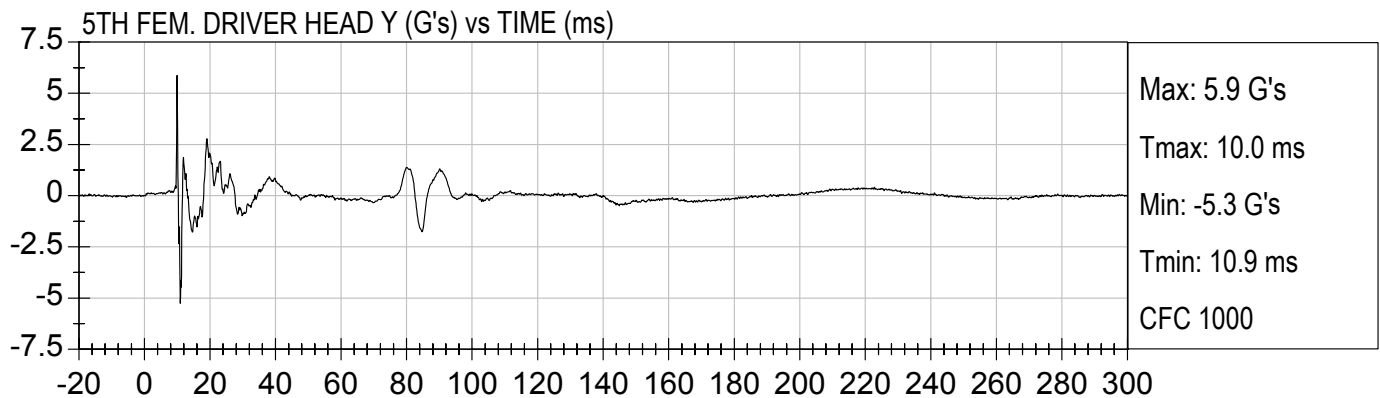
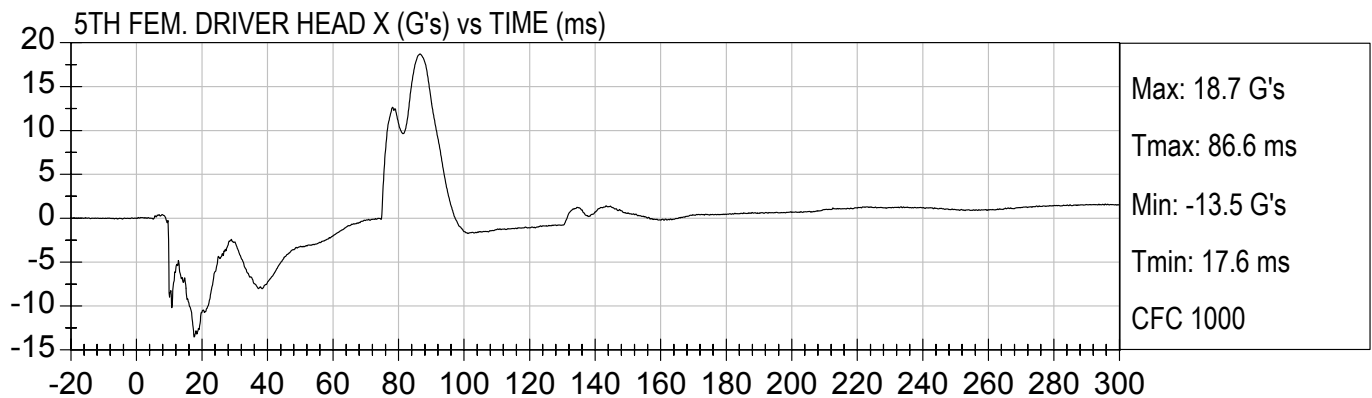


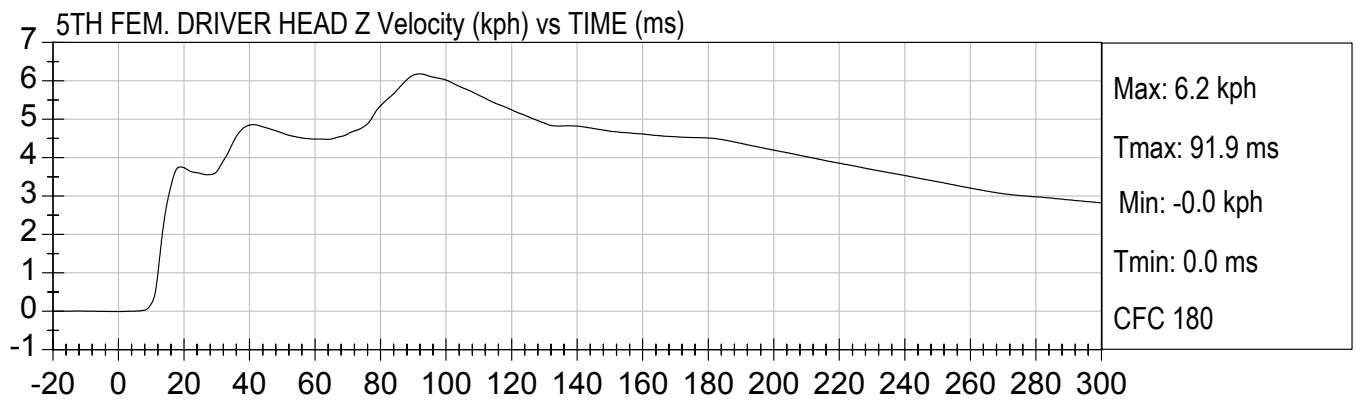
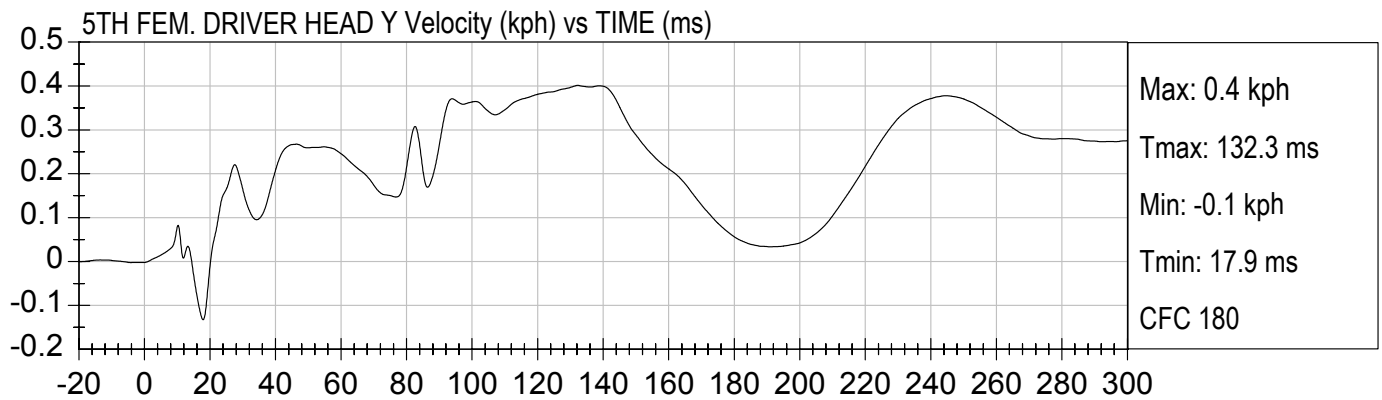
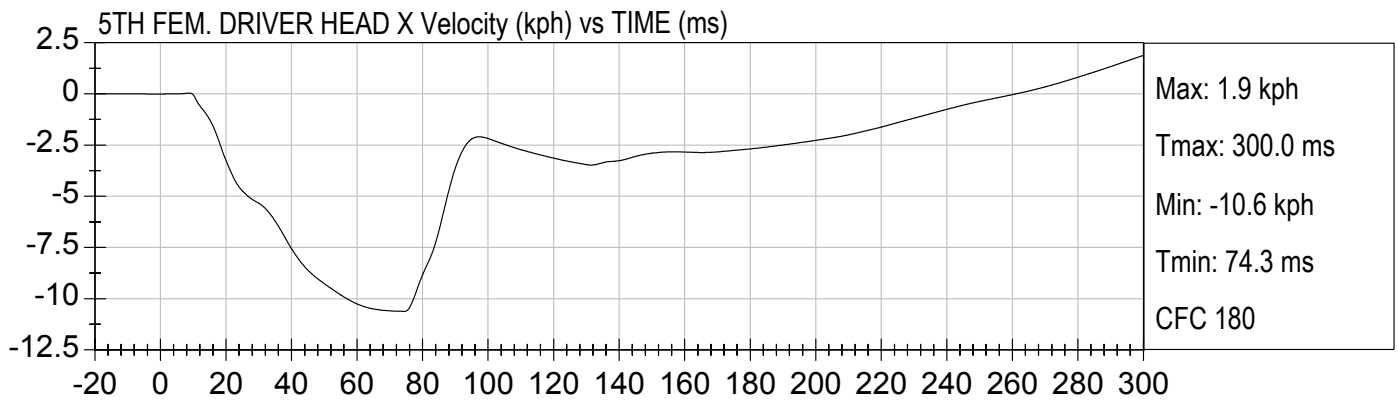
Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)



Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)

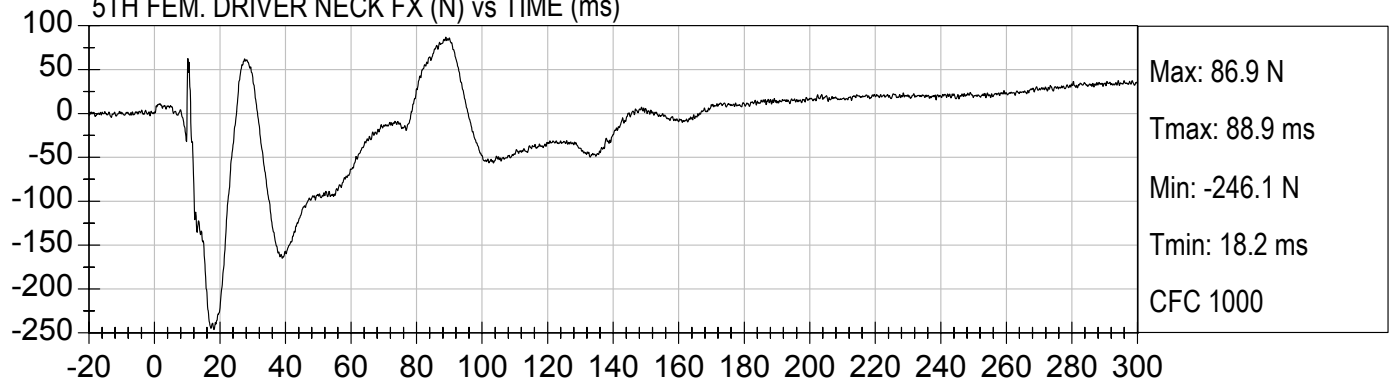




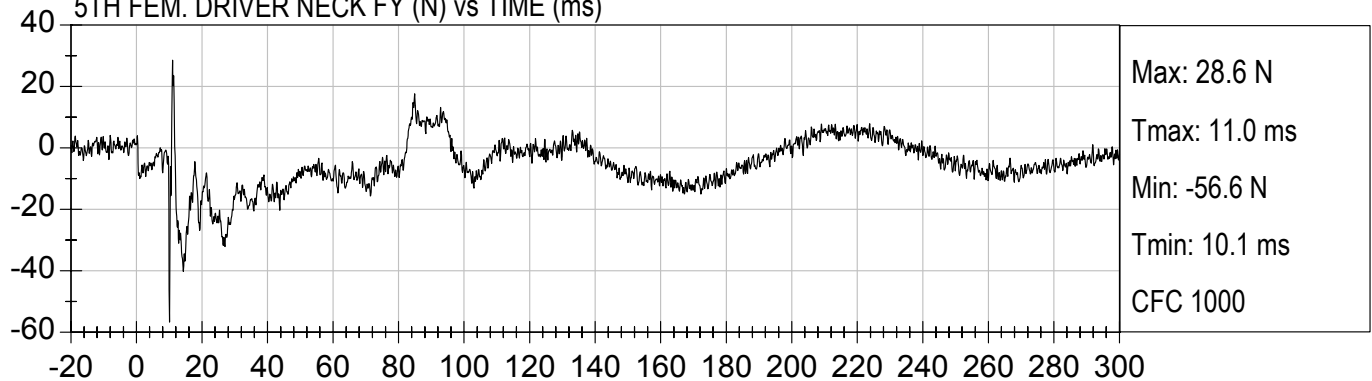




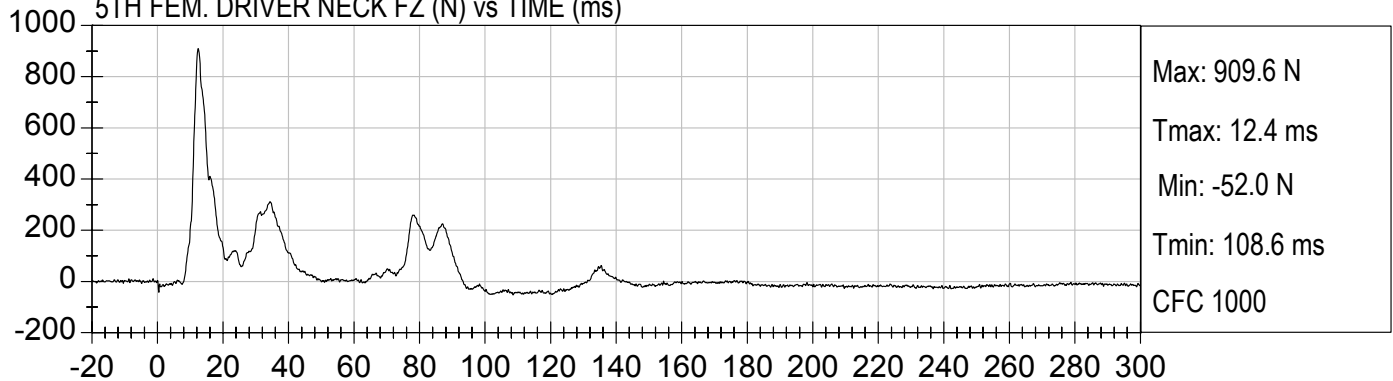
5TH FEM. DRIVER NECK FX (N) vs TIME (ms)



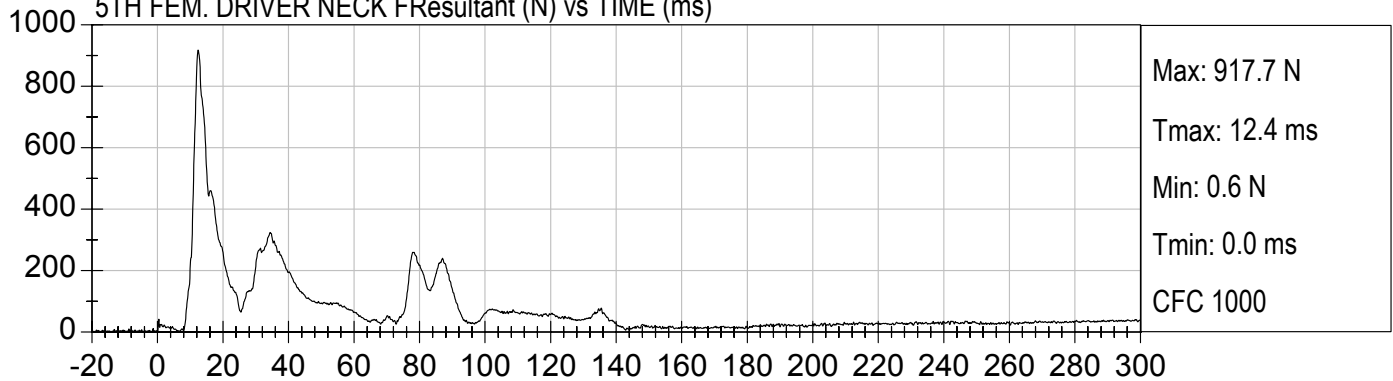
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5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)

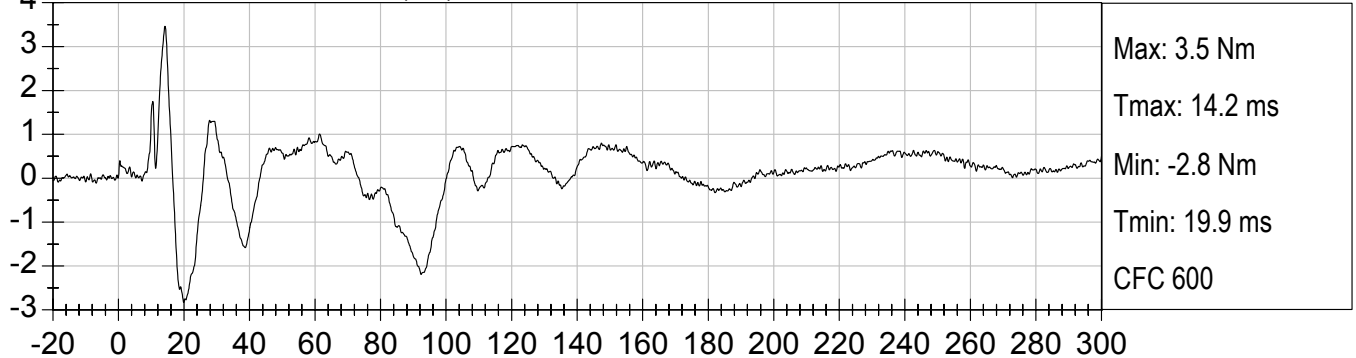


5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)

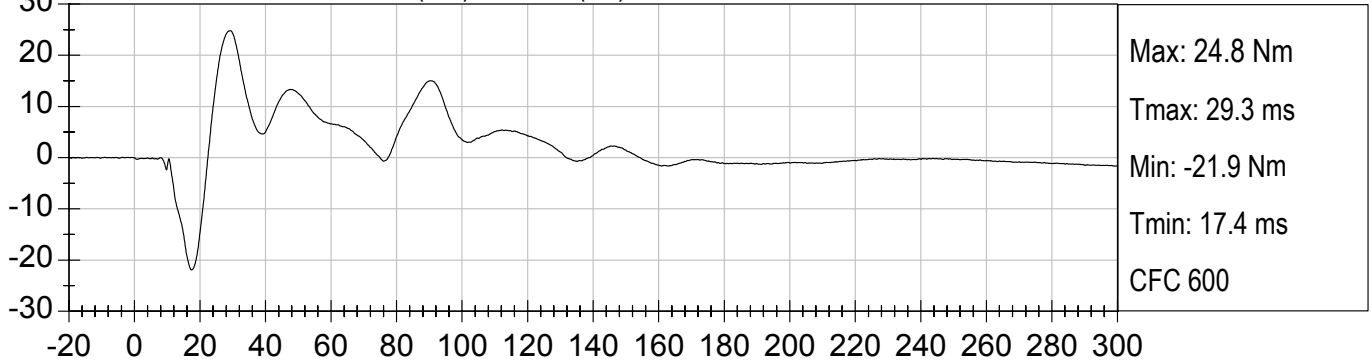




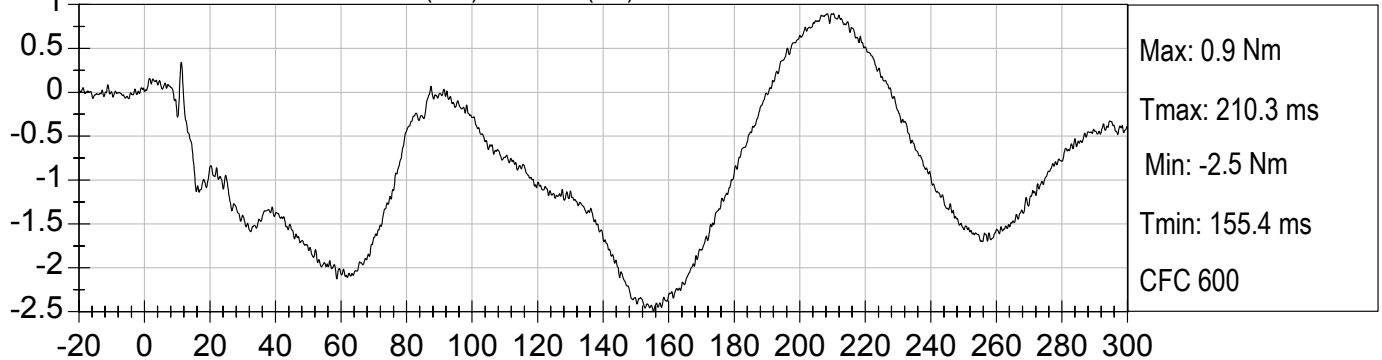
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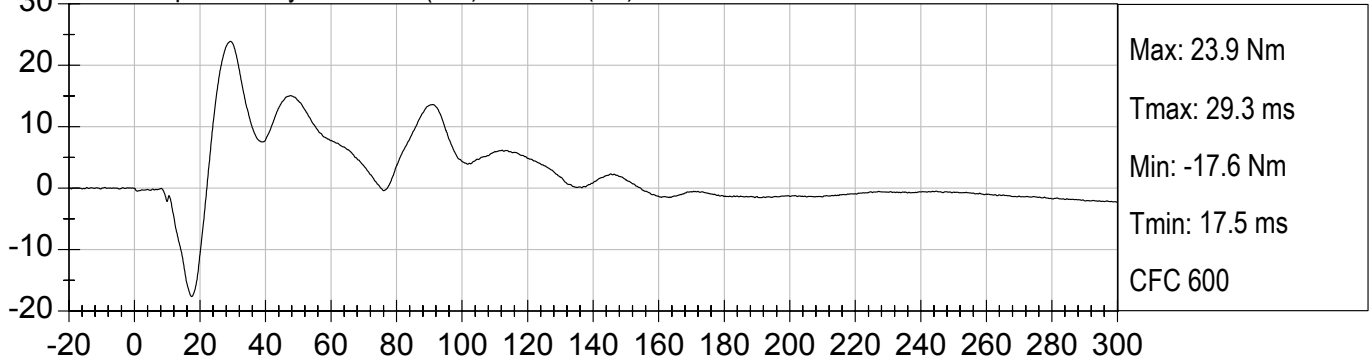
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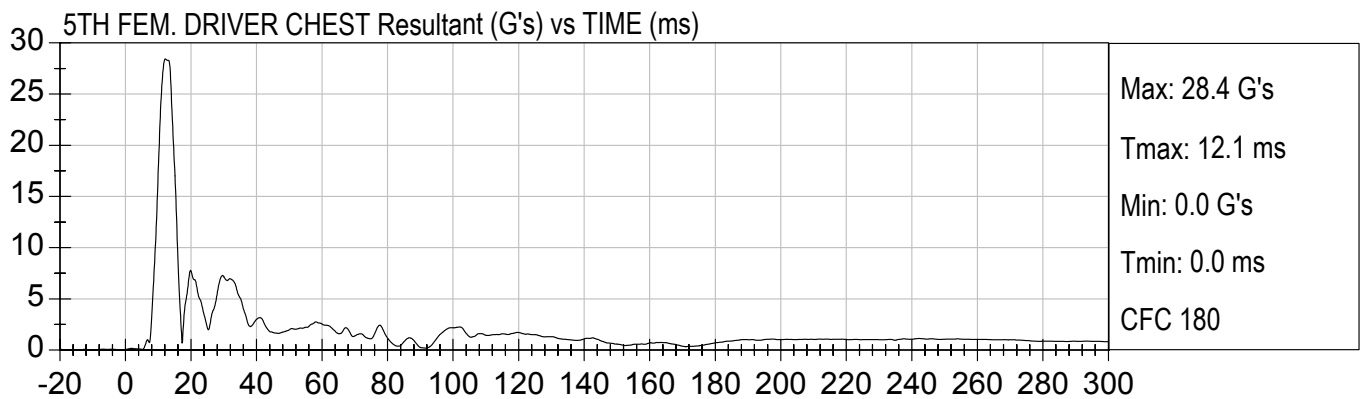
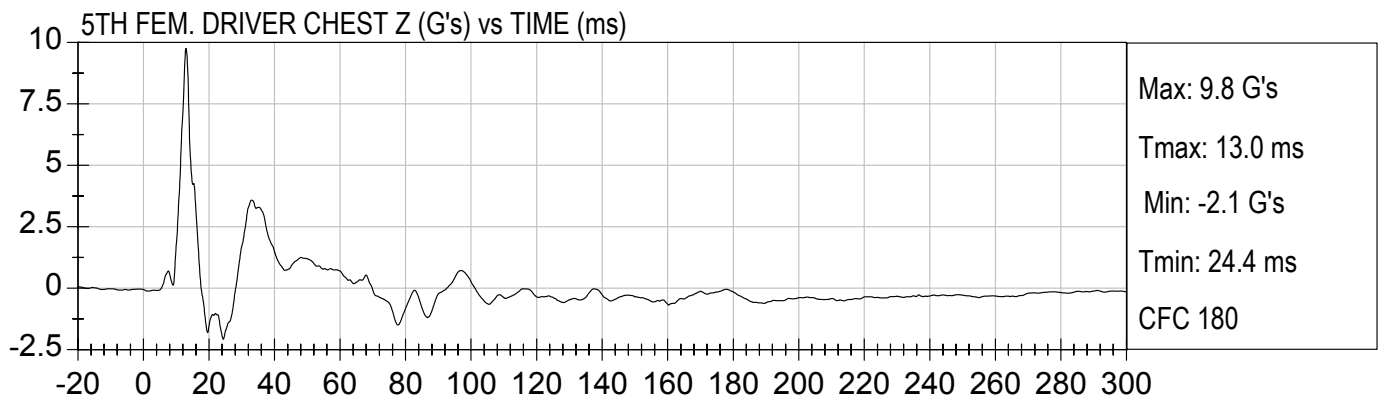
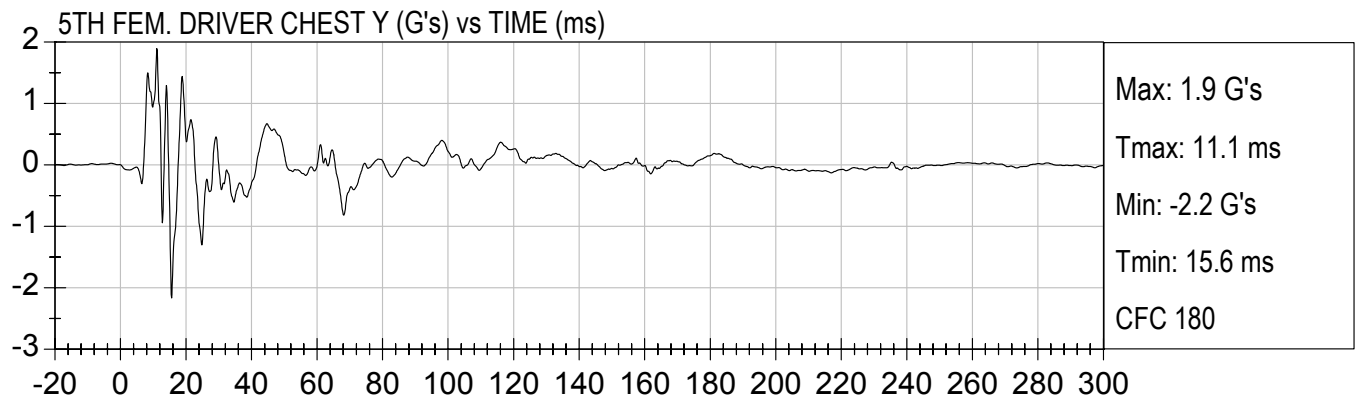
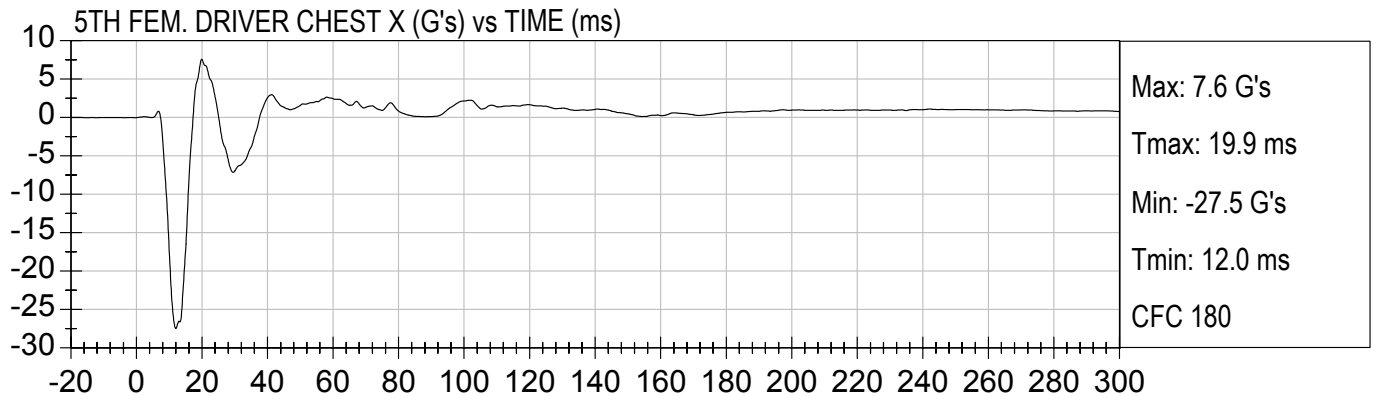


5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



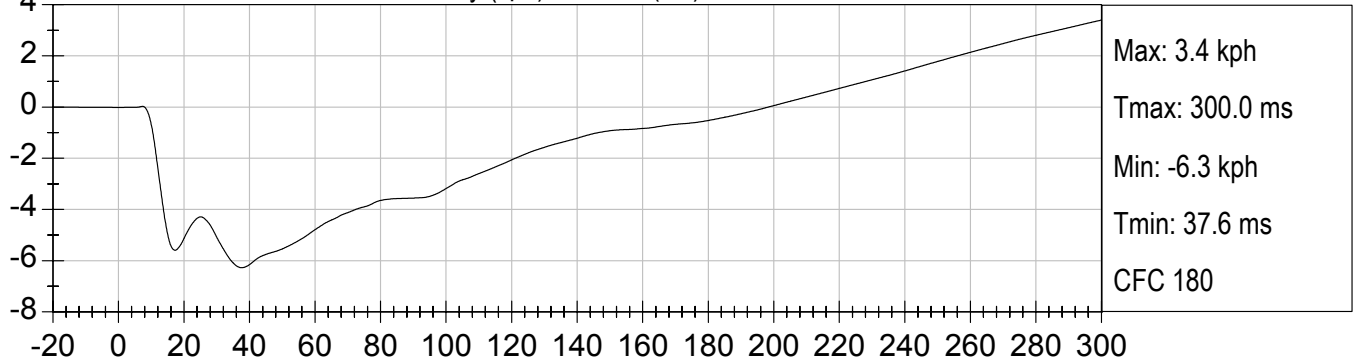
Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



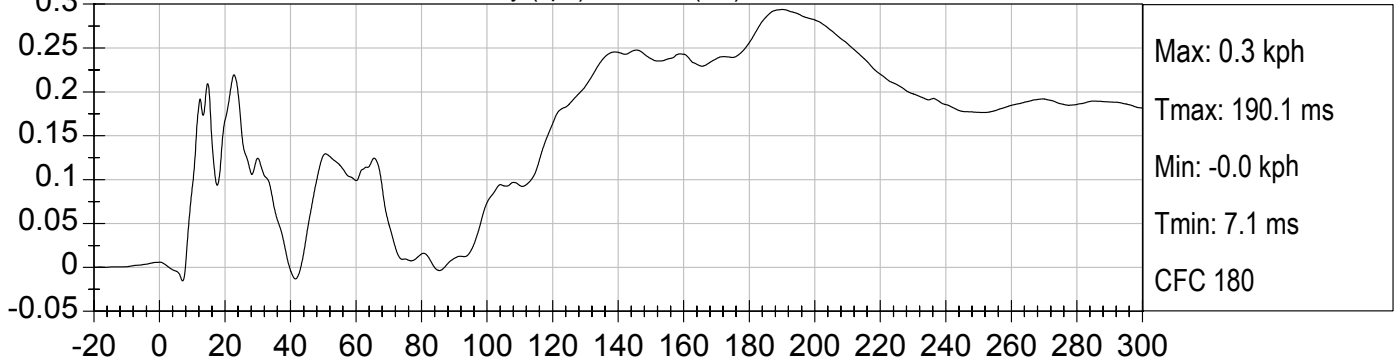




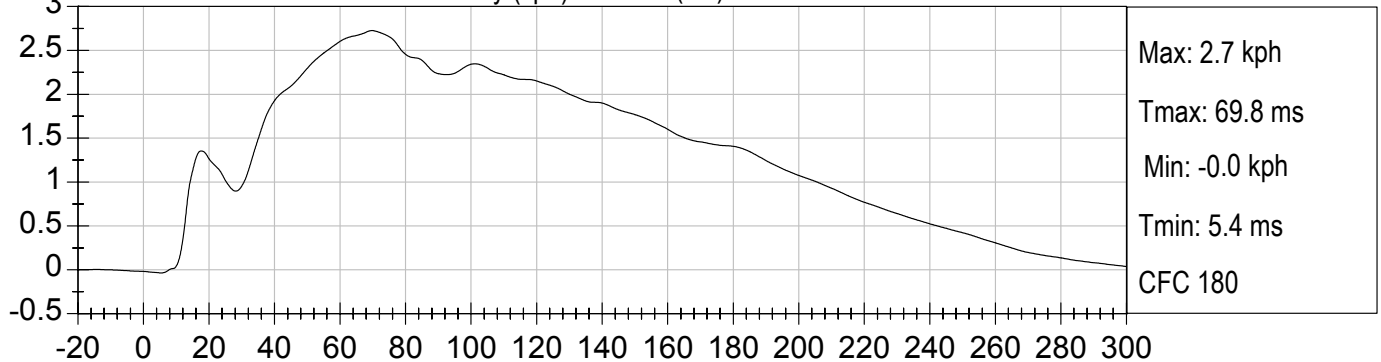
5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)



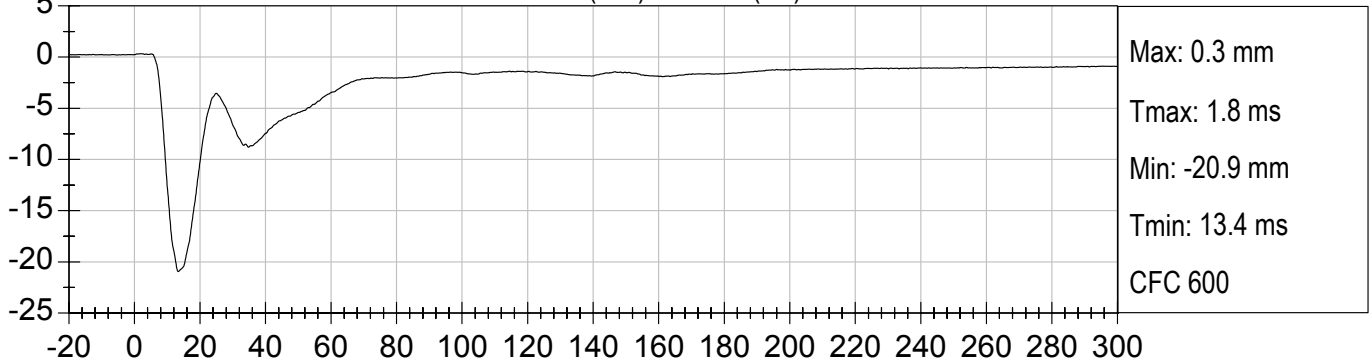
5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)

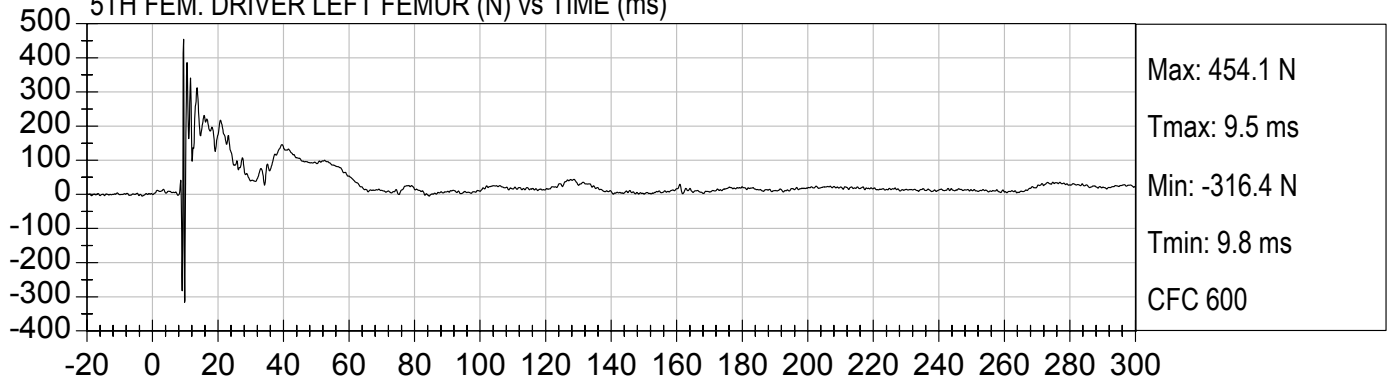


5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)

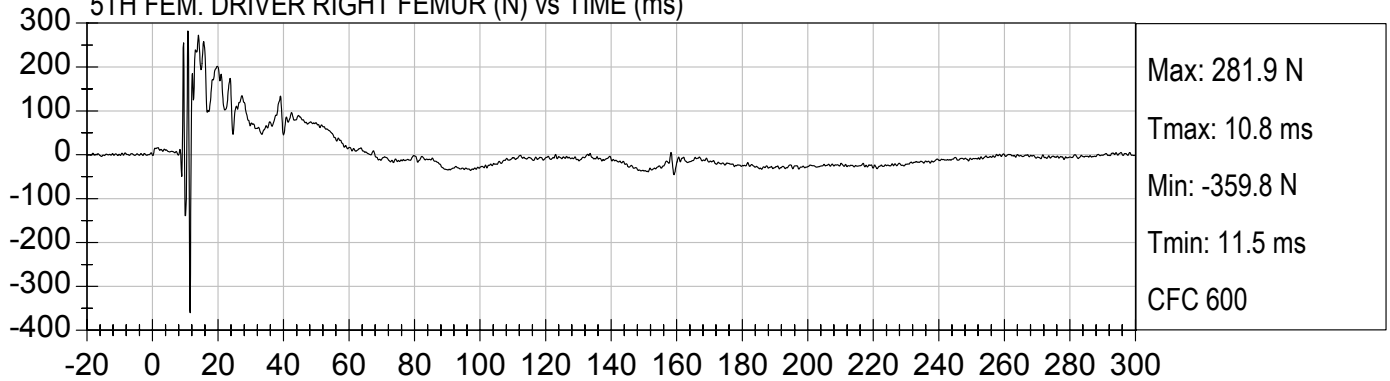




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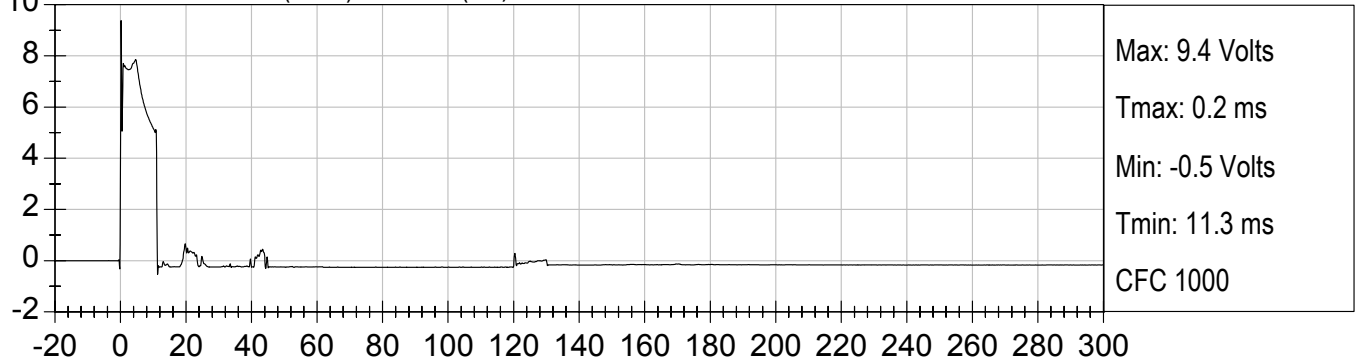


5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)

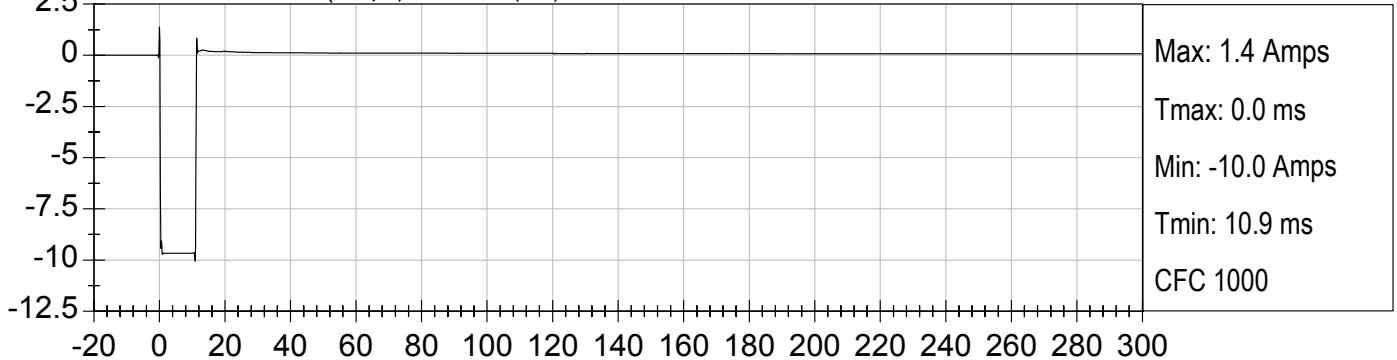




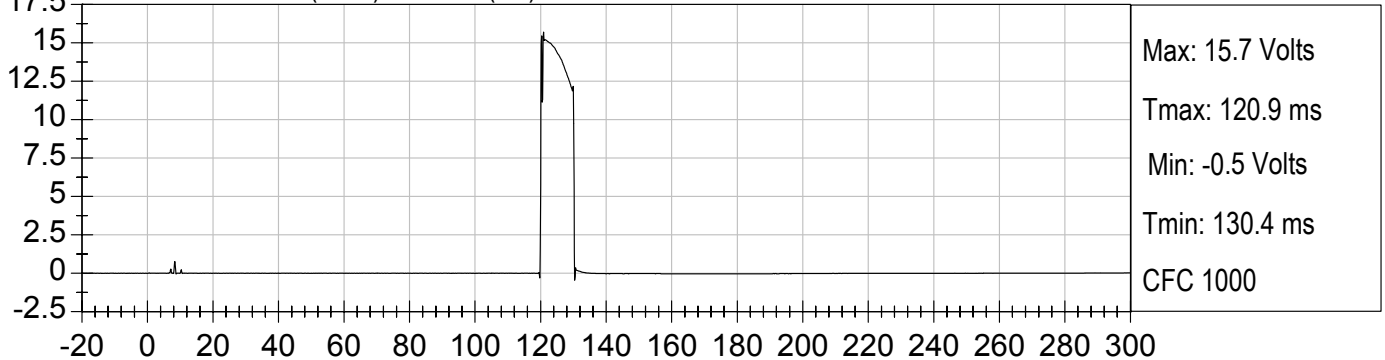
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



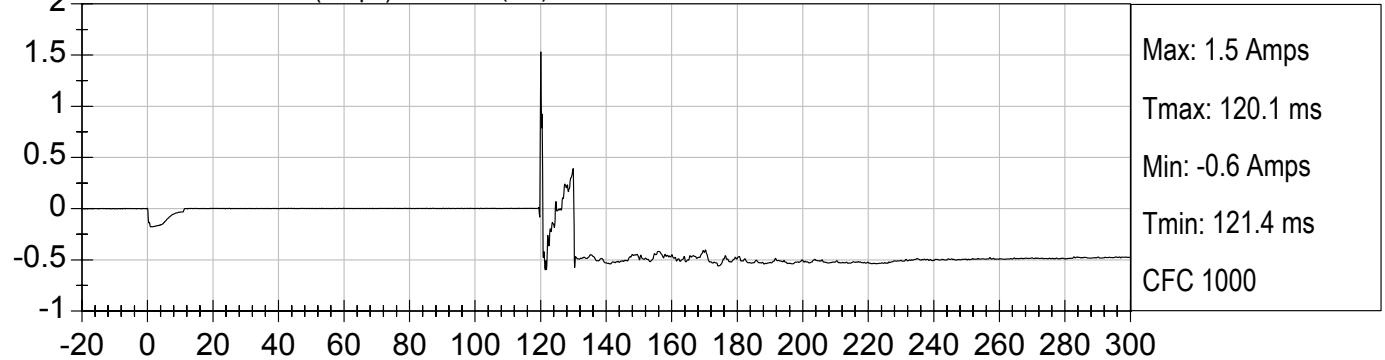
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)

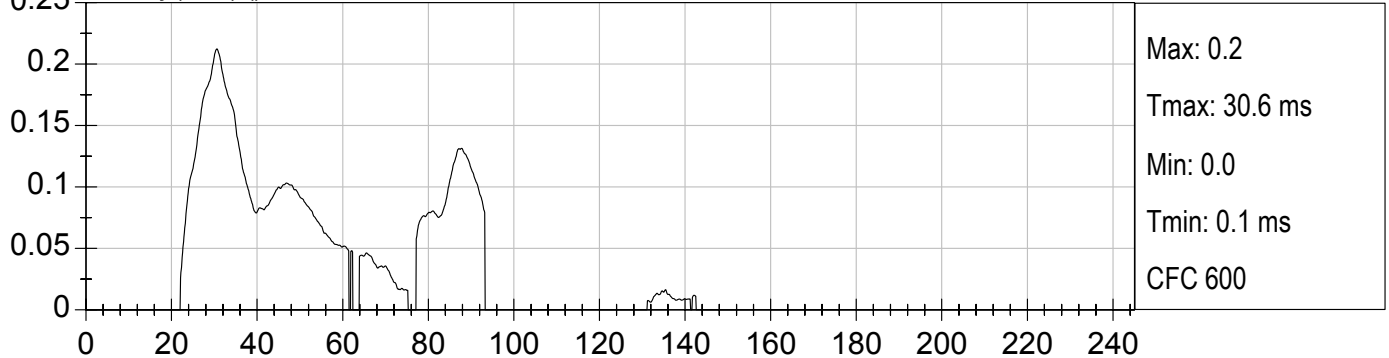


FIRE CURRENT #2 (Amps) vs TIME (ms)

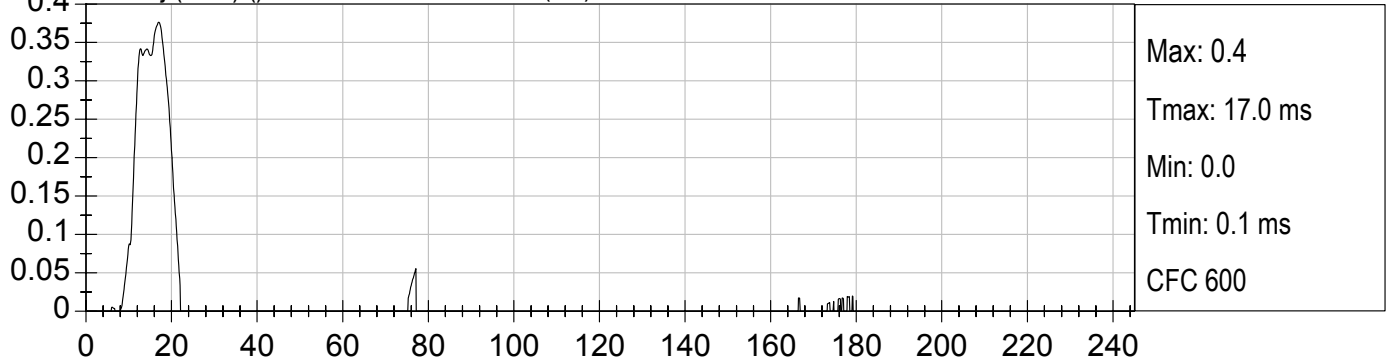




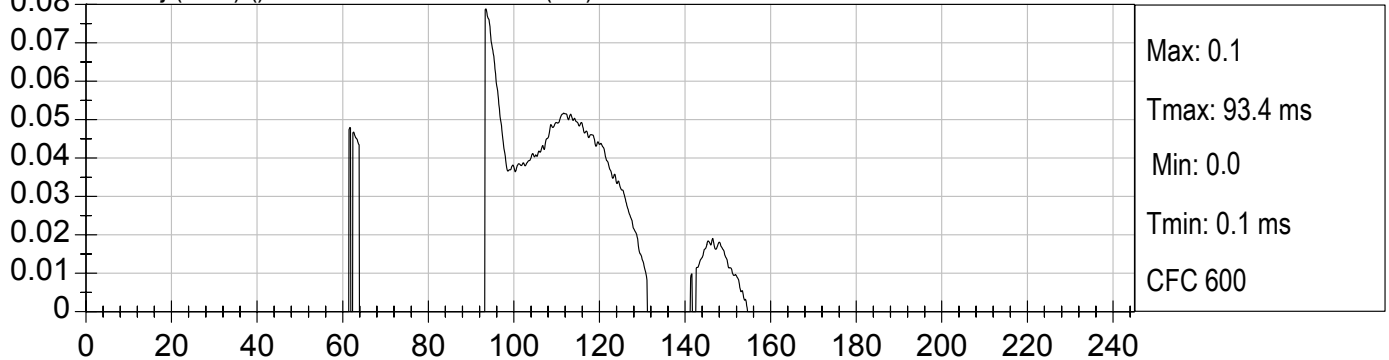
Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)



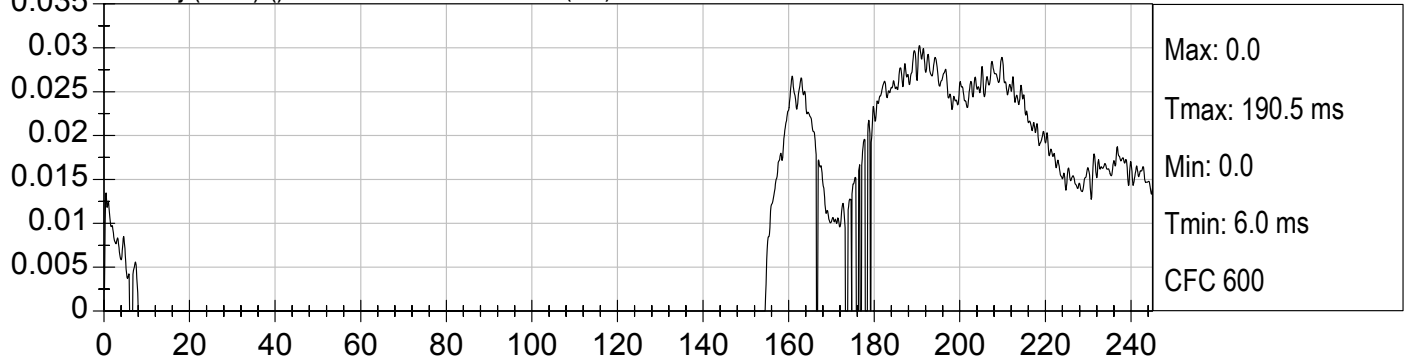
Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)



Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)



Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)



APPENDIX C
CRASH TEST PHOTOGRAPHS

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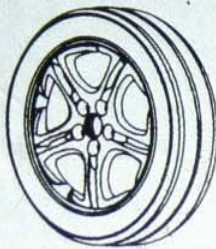
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Vehicle Certification Label

1



TIRE AND LOADING INFORMATION

SEATING CAPACITY	TOTAL 5	FRONT 2	REAR 3
------------------	---------	---------	--------

The combined weight of occupants and cargo should never exceed 385 kg or 850 lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
P185/65R15	FRONT	210kPa, 30PSI
P195/60R15	REAR	210kPa, 30PSI
COMPACT SPARE TIRE	COLD TIRE INFLATION PRESSURE	
T125/70D15	420kPa, 60PSI	
T125/70R15		

**SEE OWNER'S
MANUAL FOR
ADDITIONAL
INFORMATION**

Tire Placard



Pre-Test Front View of Test Vehicle



Post-Test Front View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Right Front Three-Quarter View of Test Vehicle



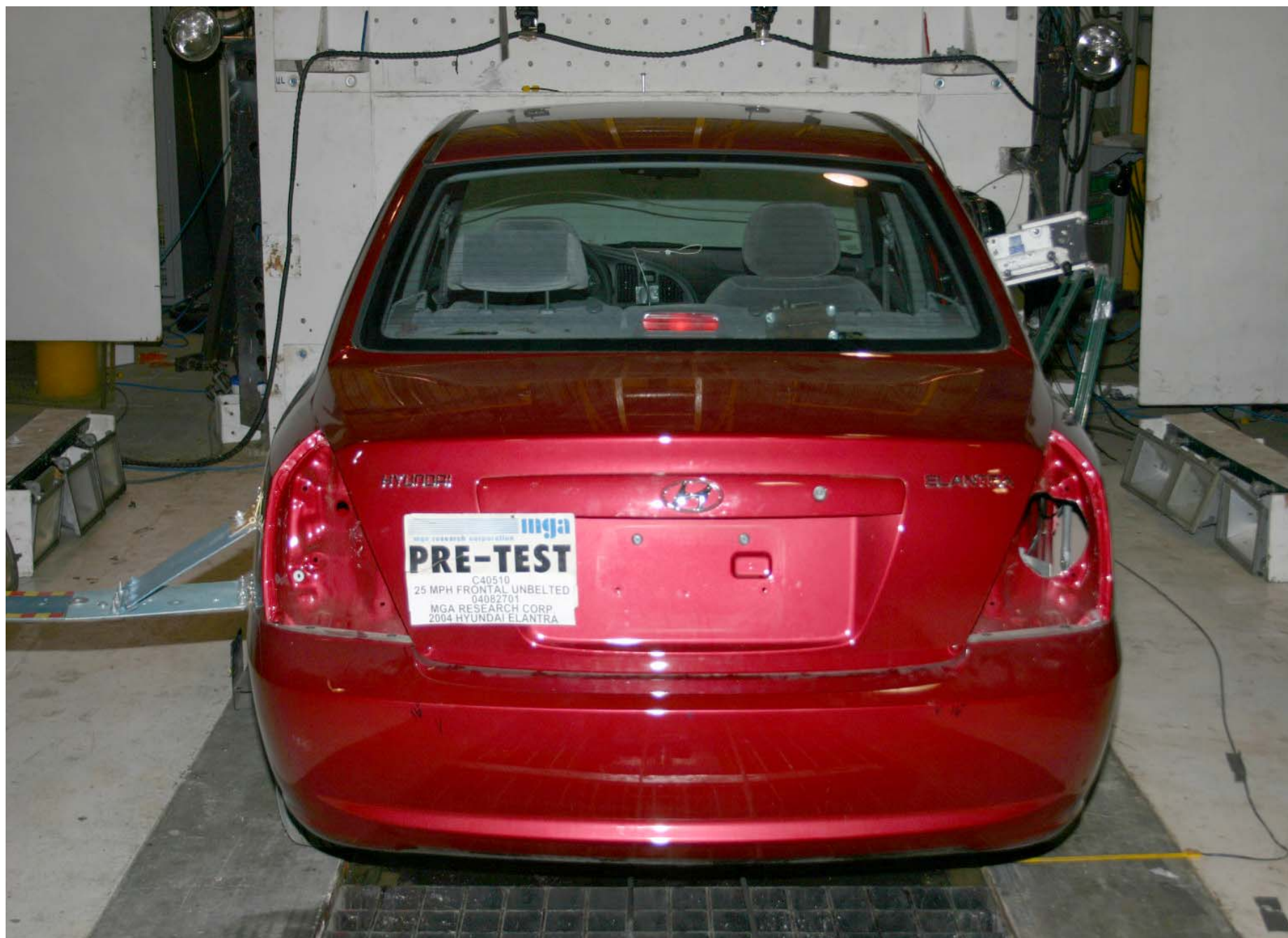
Post-Test Right Front Three-Quarter View of Test Vehicle



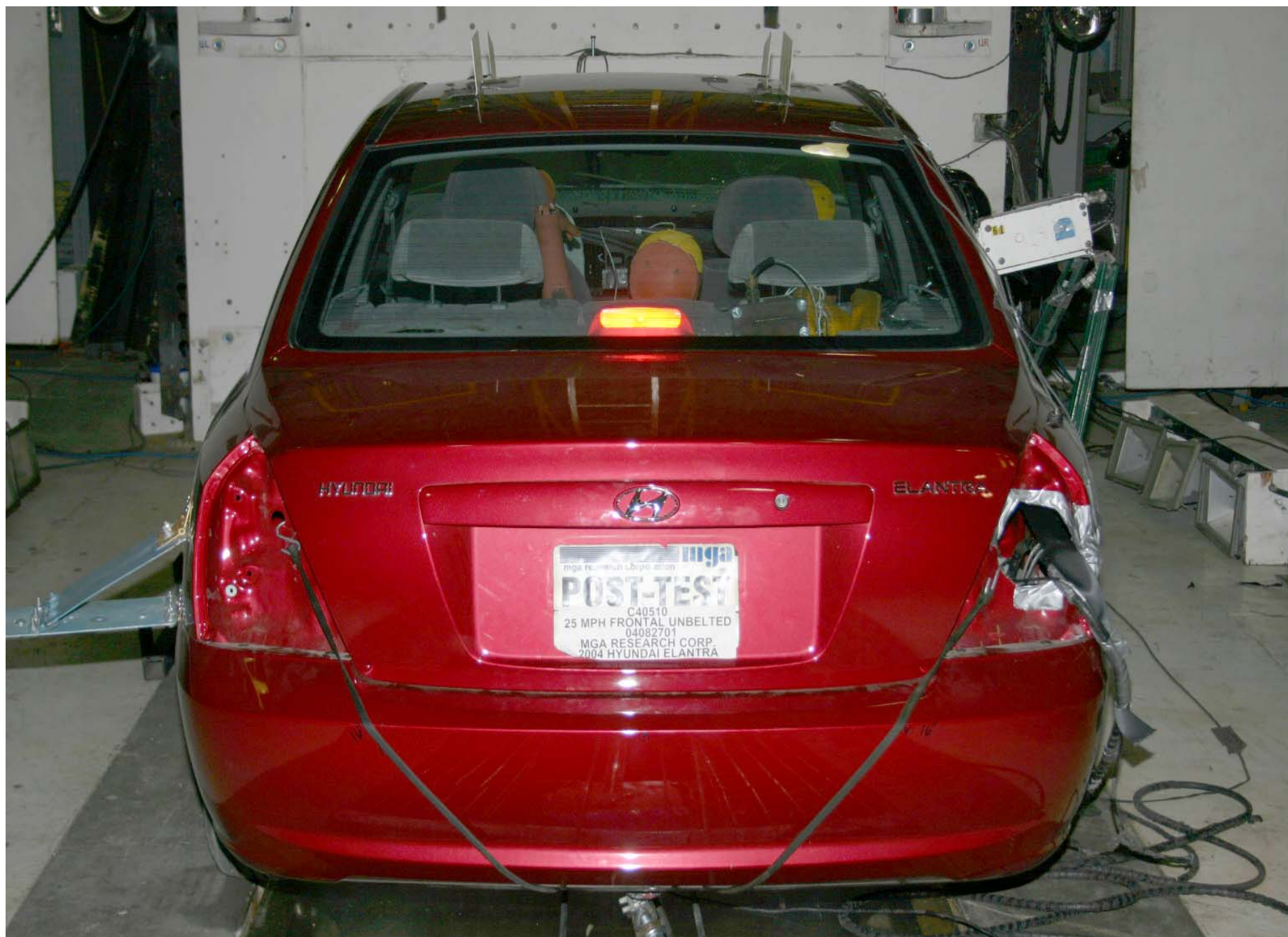
Pre-Test Left Rear Three-Quarter View of Test Vehicle



Post-Test Left Rear Three-Quarter View of Test Vehicle



Pre-Test Rear View of Test Vehicle



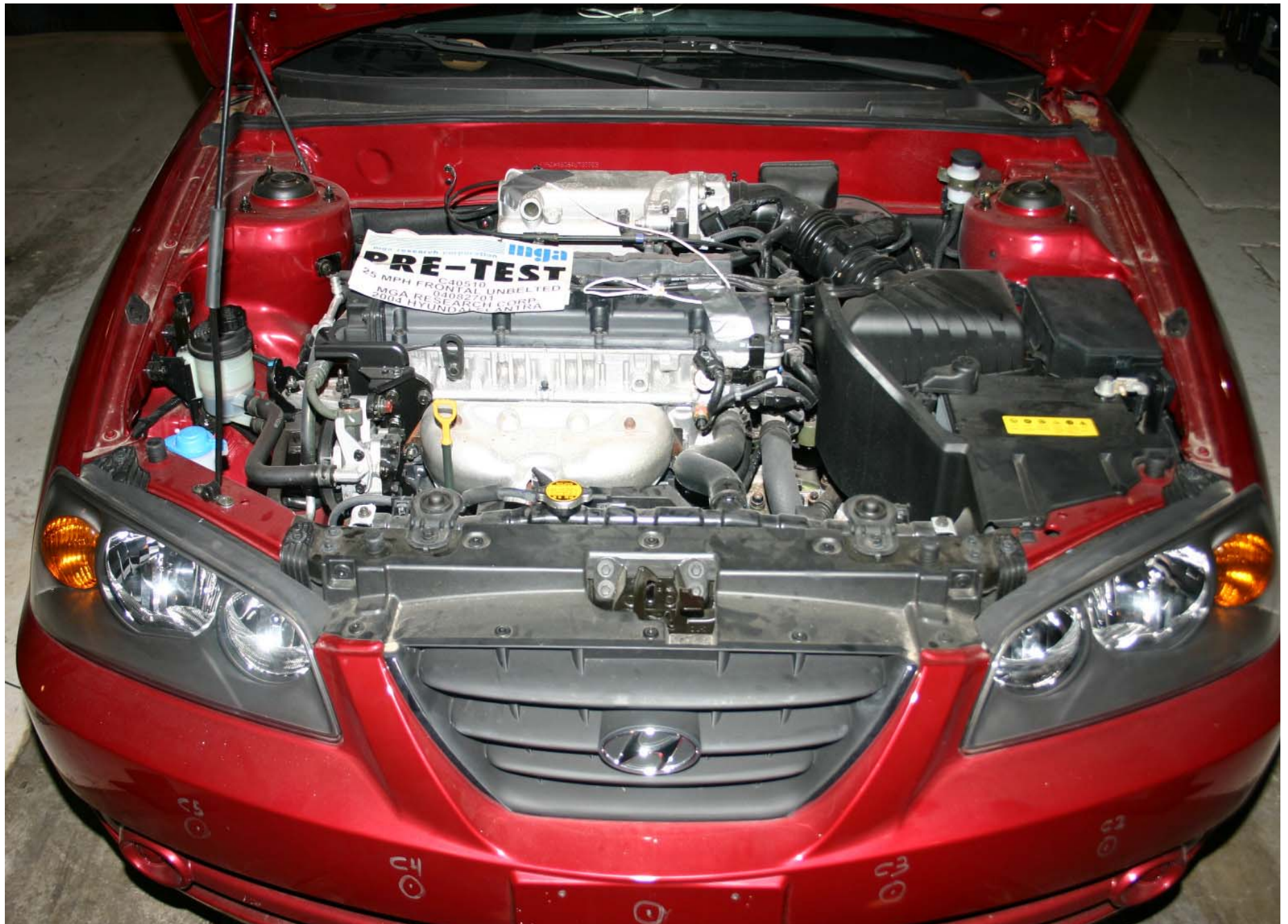
Post-Test Rear View of Test Vehicle



Pre-Test Windshield View



Post-Test Windshield View



Pre-Test Engine Compartment View



Post-Test Engine Compartment View

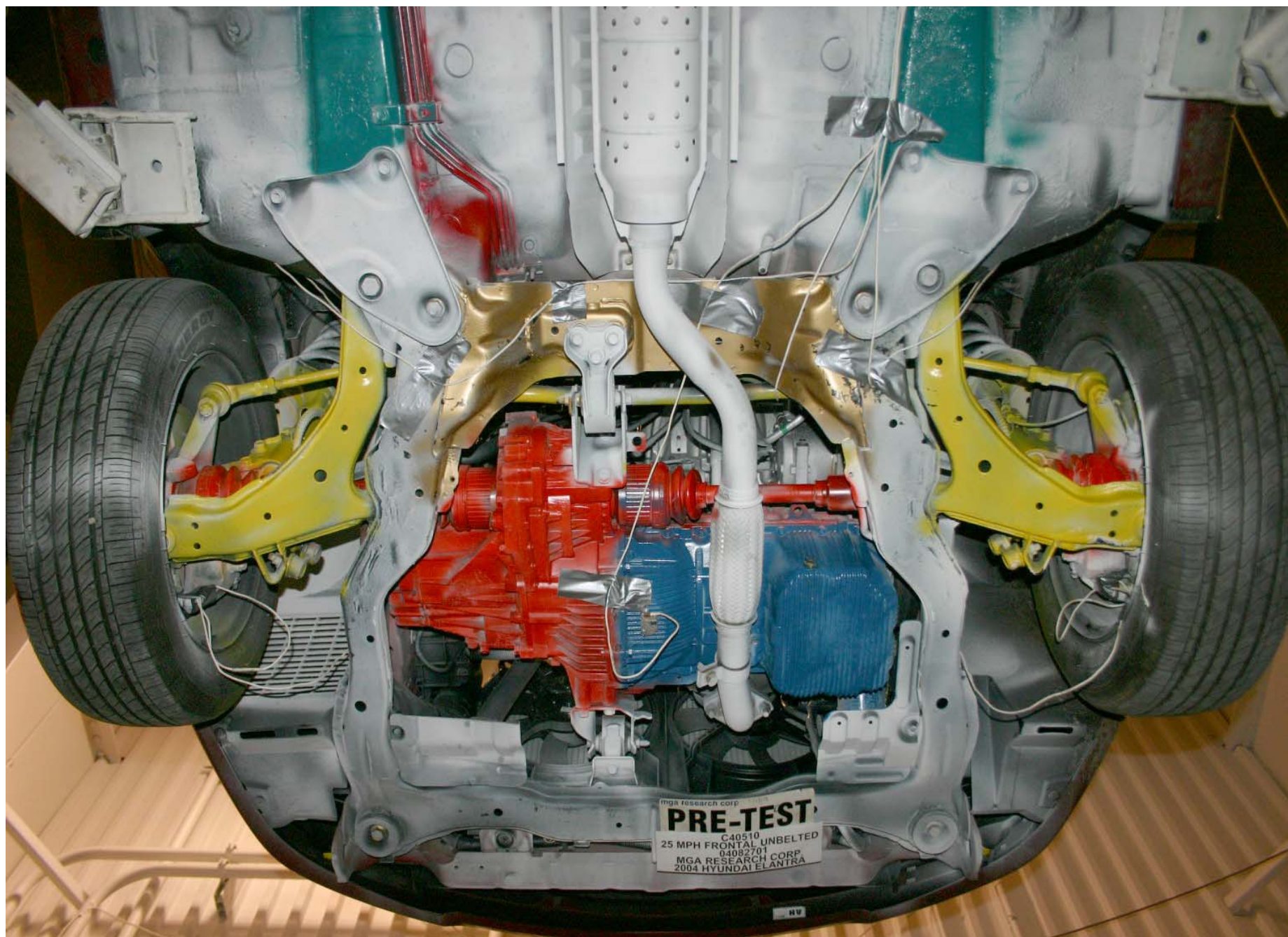


Pre-Test Fuel Filler Cap View

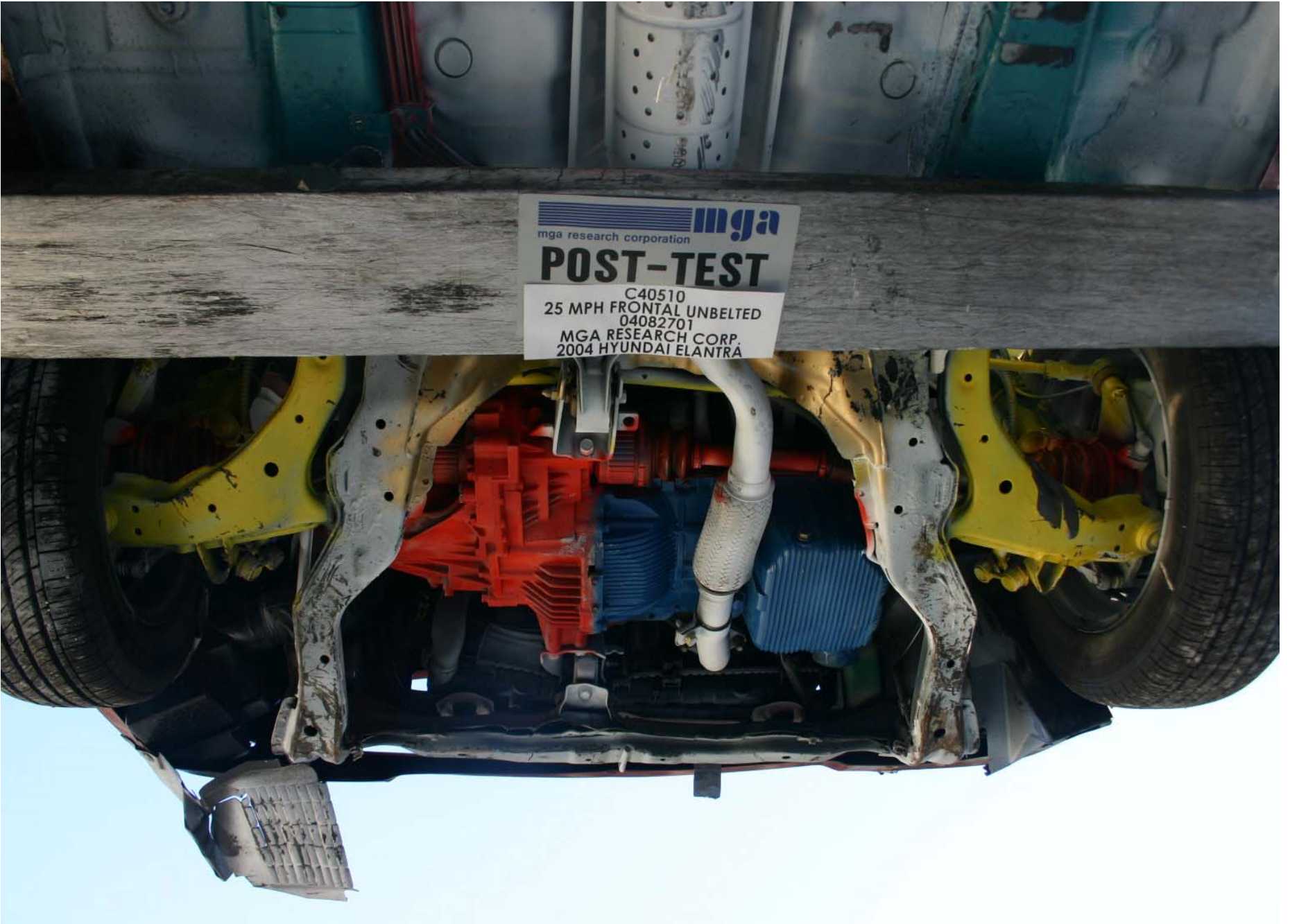
mga
mga research corporation
POST-TEST
C40510
25 MPH FRONTAL UNBELTED
04082701
MGA RESEARCH CORP.
2004 HYUNDAI ELANTRA



Post-Test Fuel Filler Cap View



Pre-Test Front Underbody View



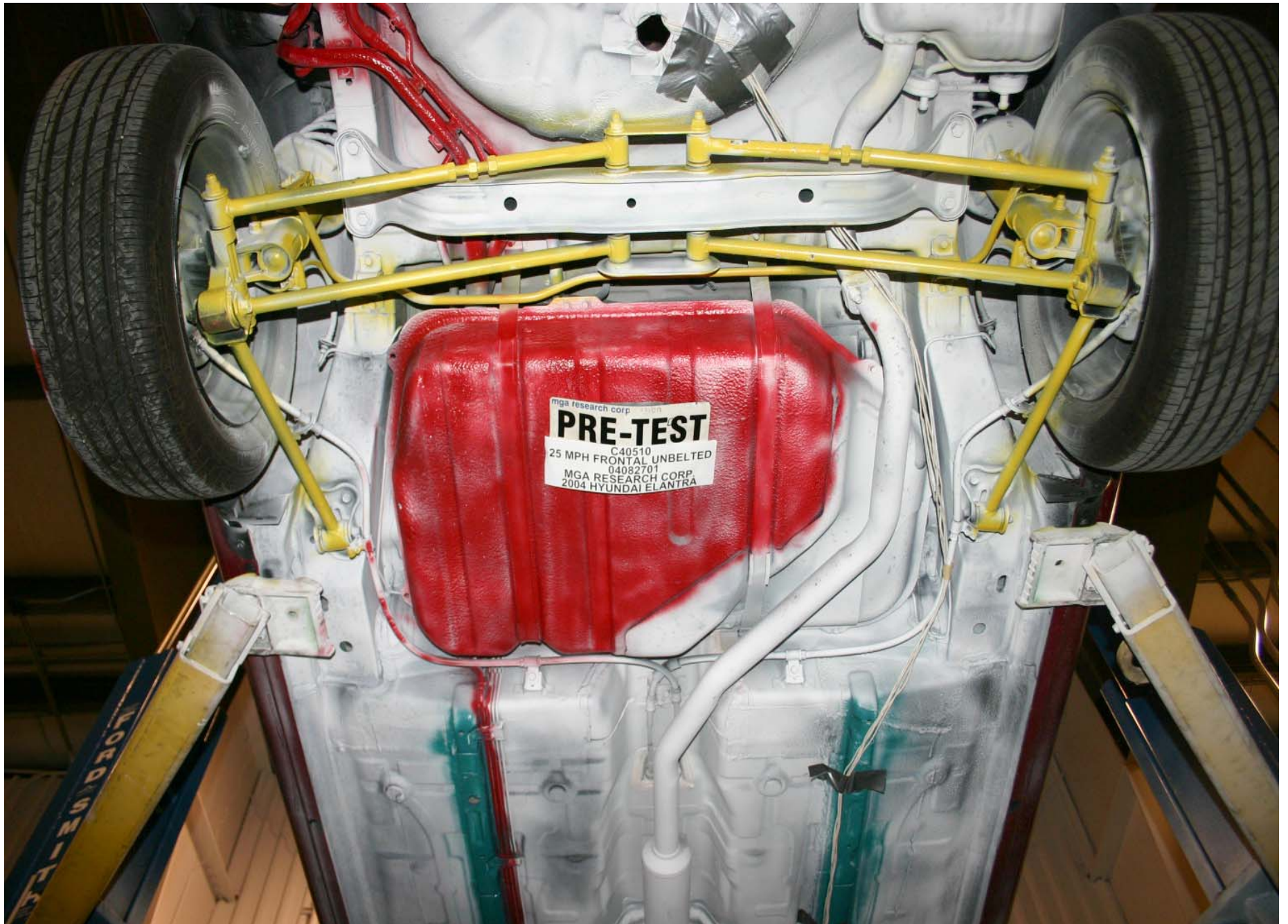
Post-Test Front Underbody View



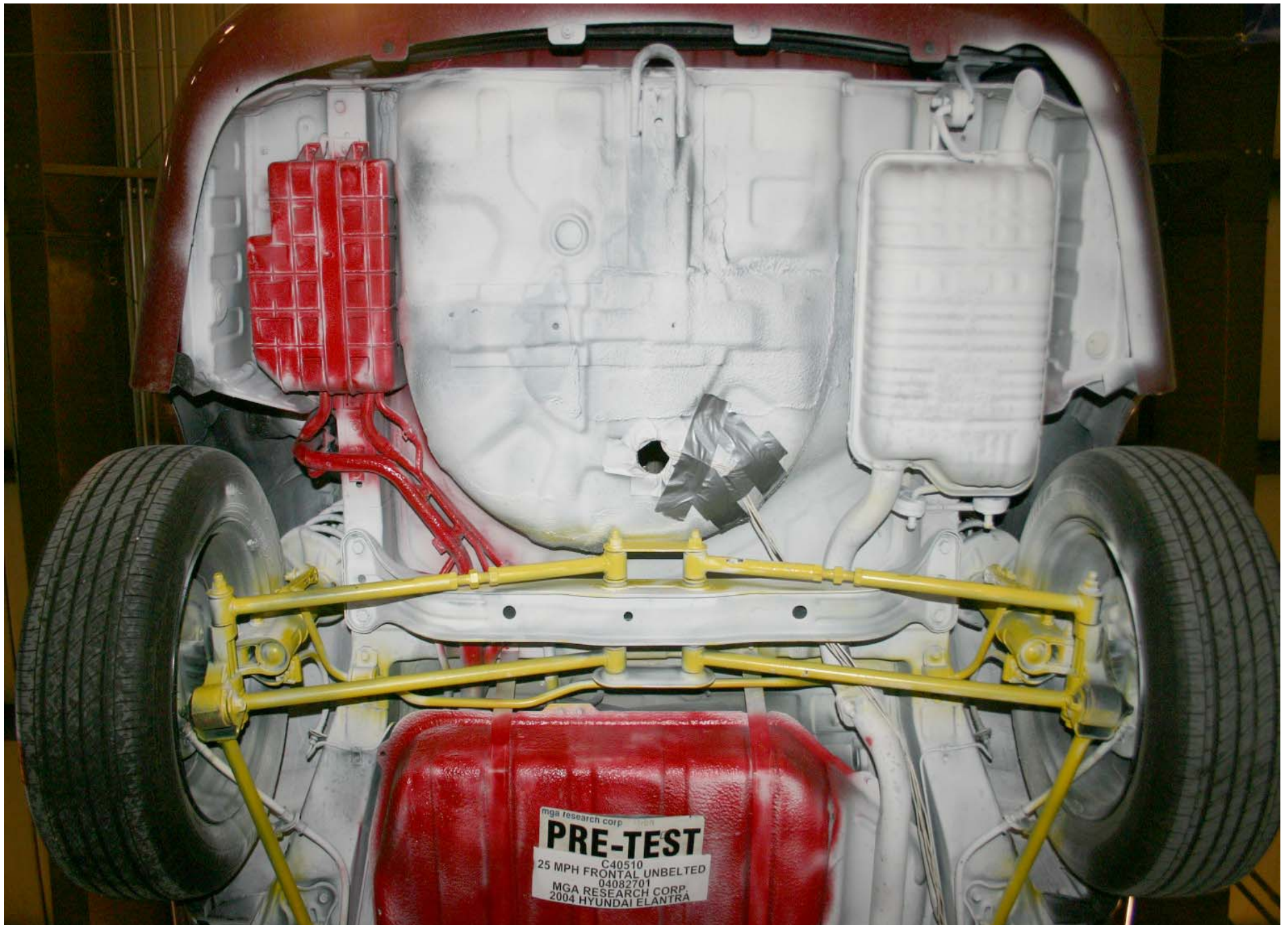
Pre-Test Front Mid Underbody



Post-Test Front Mid Underbody



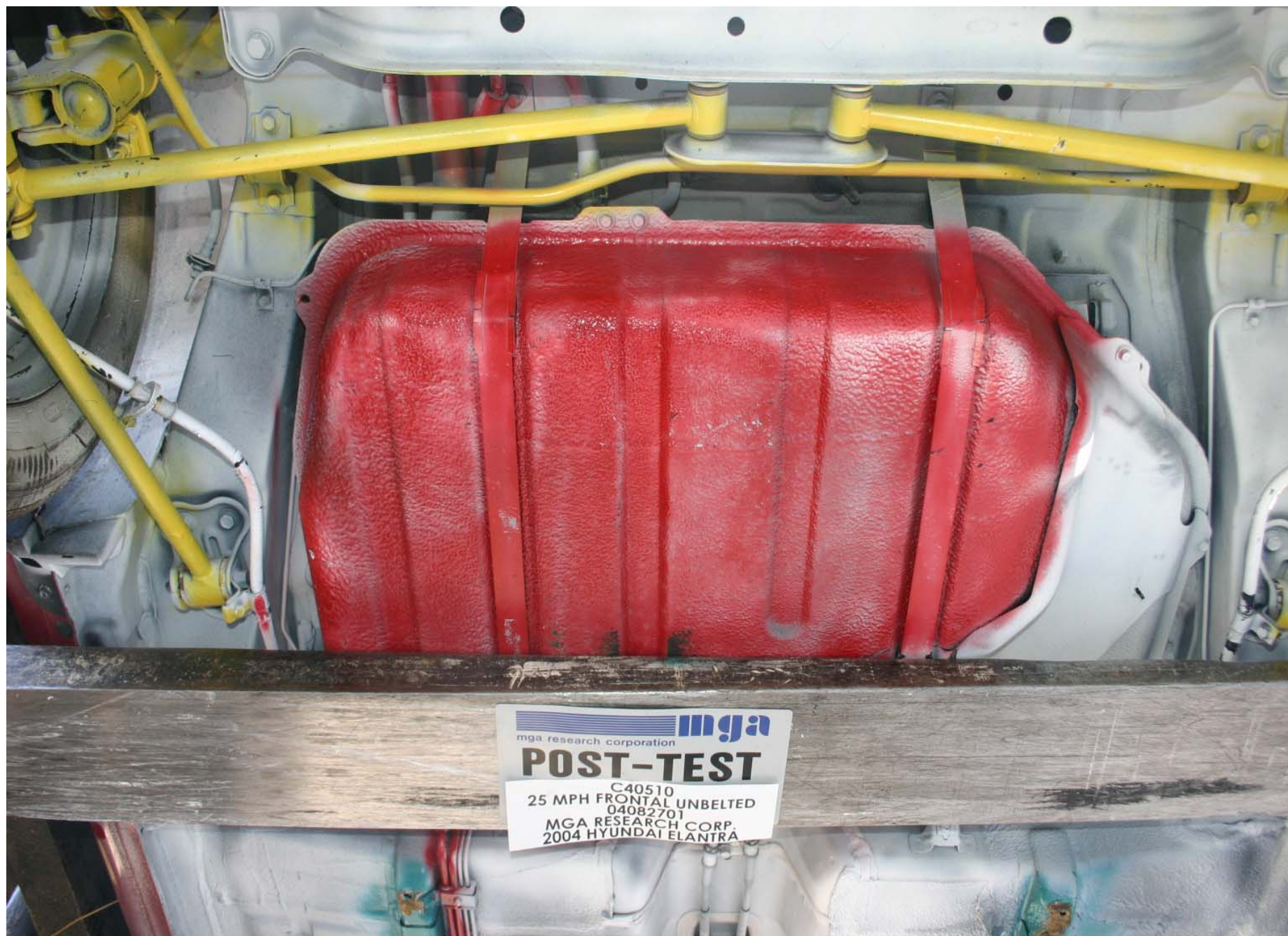
Pre-Test Rear Mid Underbody



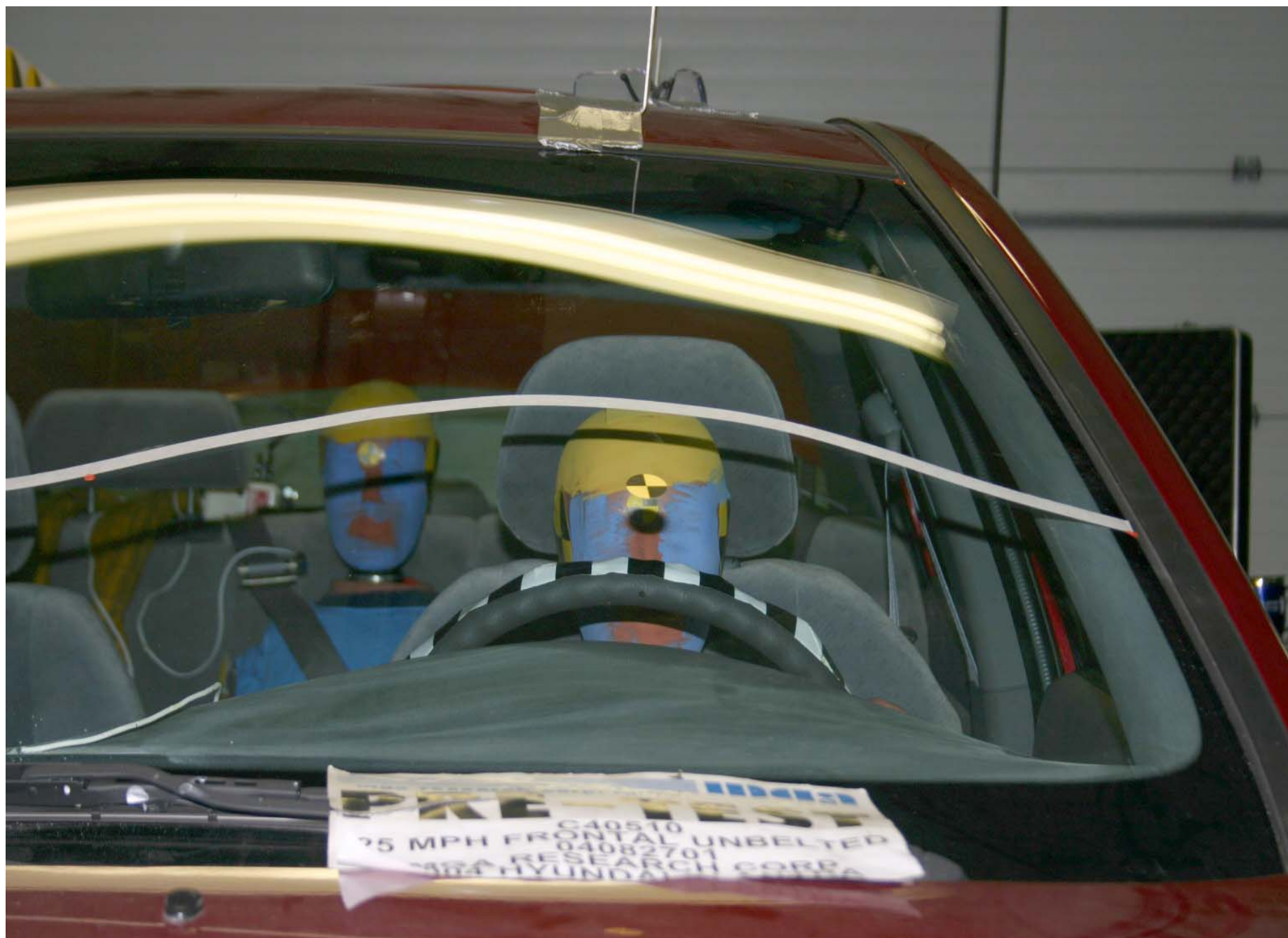
Pre-Test Rear Underbody View



Post-Test Rear Underbody



Post-Test Fuel Tank View



Pre-Test Driver Dummy Front View (head position)



Post-Test Driver Dummy Front View (head position)



Pre-Test Driver Dummy Position Left Side View



Post-Test Driver Dummy Position Left Side View



Pre-Test Driver Dummy Position Left Side View (Door Open)



Post-Test Driver Dummy Position Left Side View (Door Open)



Pre-Test Driver Dummy Seat Position



Post-Test Driver Dummy Seat Position



Pre-Test Driver Dummy Feet Position



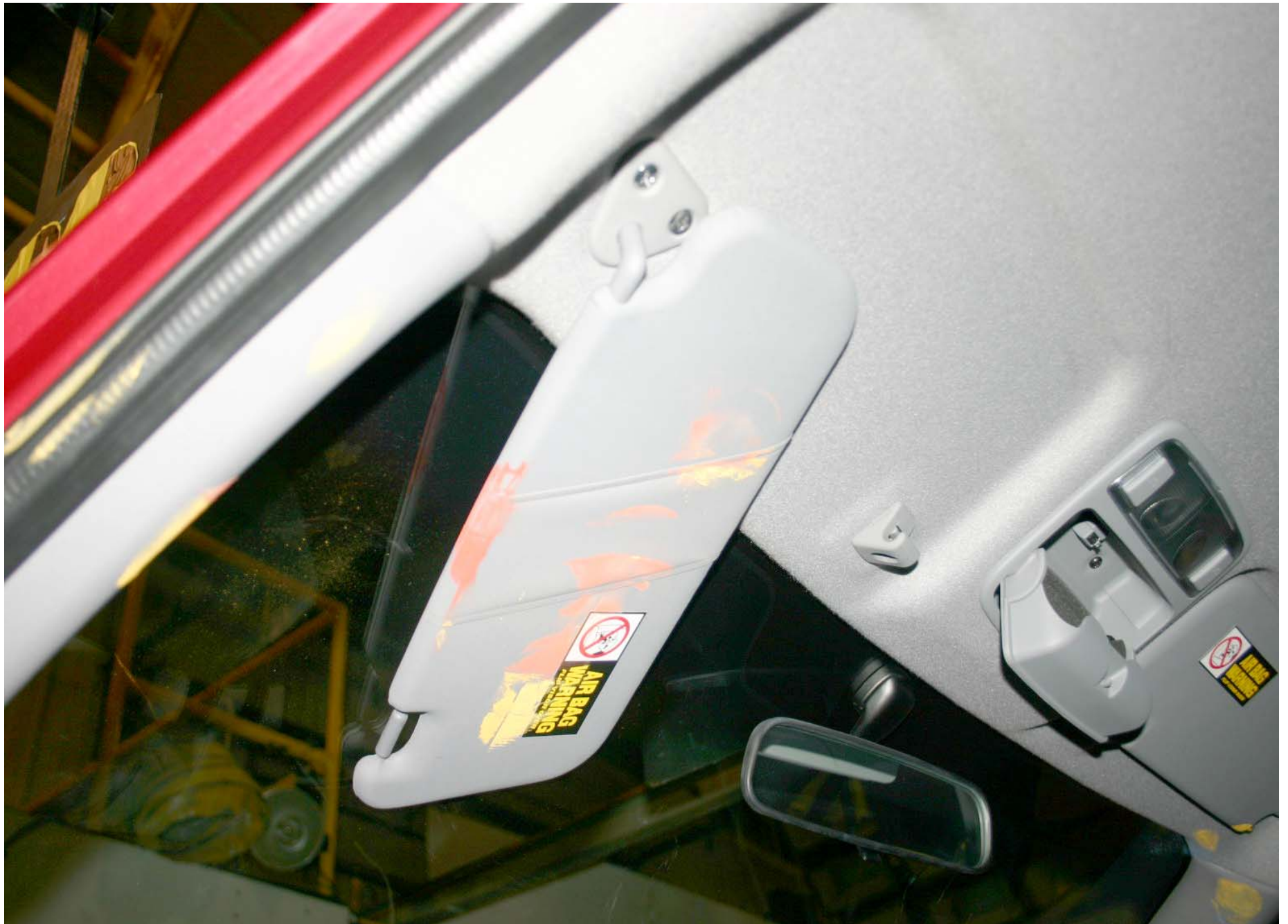
Post-Test Driver Dummy Feet Position



Pre-Test Driver Side Knee Bolster View



Post-Test Driver Side Knee Bolster View



Post-Test Driver Dummy Head Contact (visor)



Post-Test Driver Dummy Knee Contact



Post-Test Driver Dummy Airbag Contact



Pre-Test Passenger Dummy Front View (head position)



Post-Test Passenger Dummy Front View (head position)



Pre-Test Passenger Dummy Position Right Side View



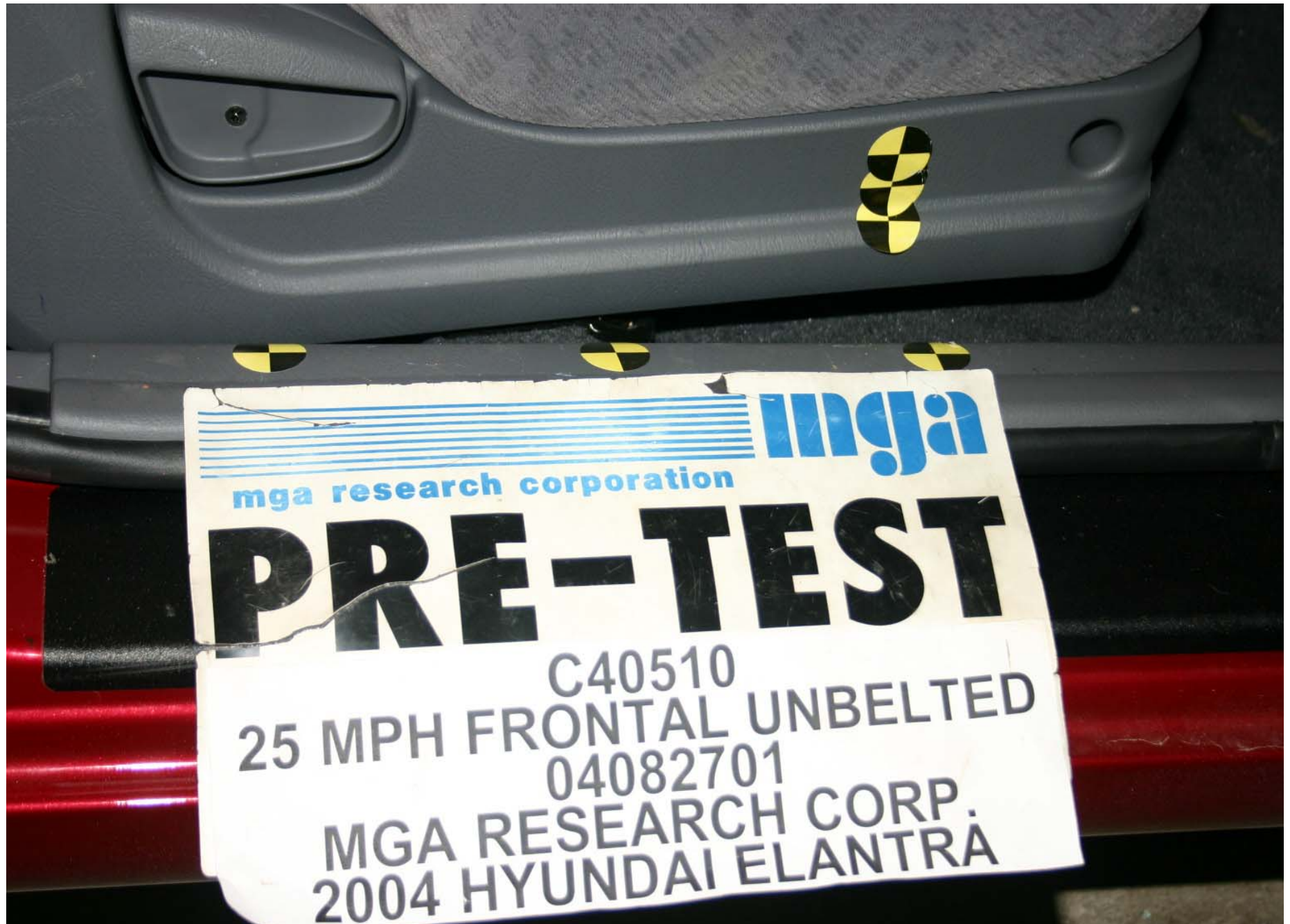
Post-Test Passenger Dummy Position Right Side View



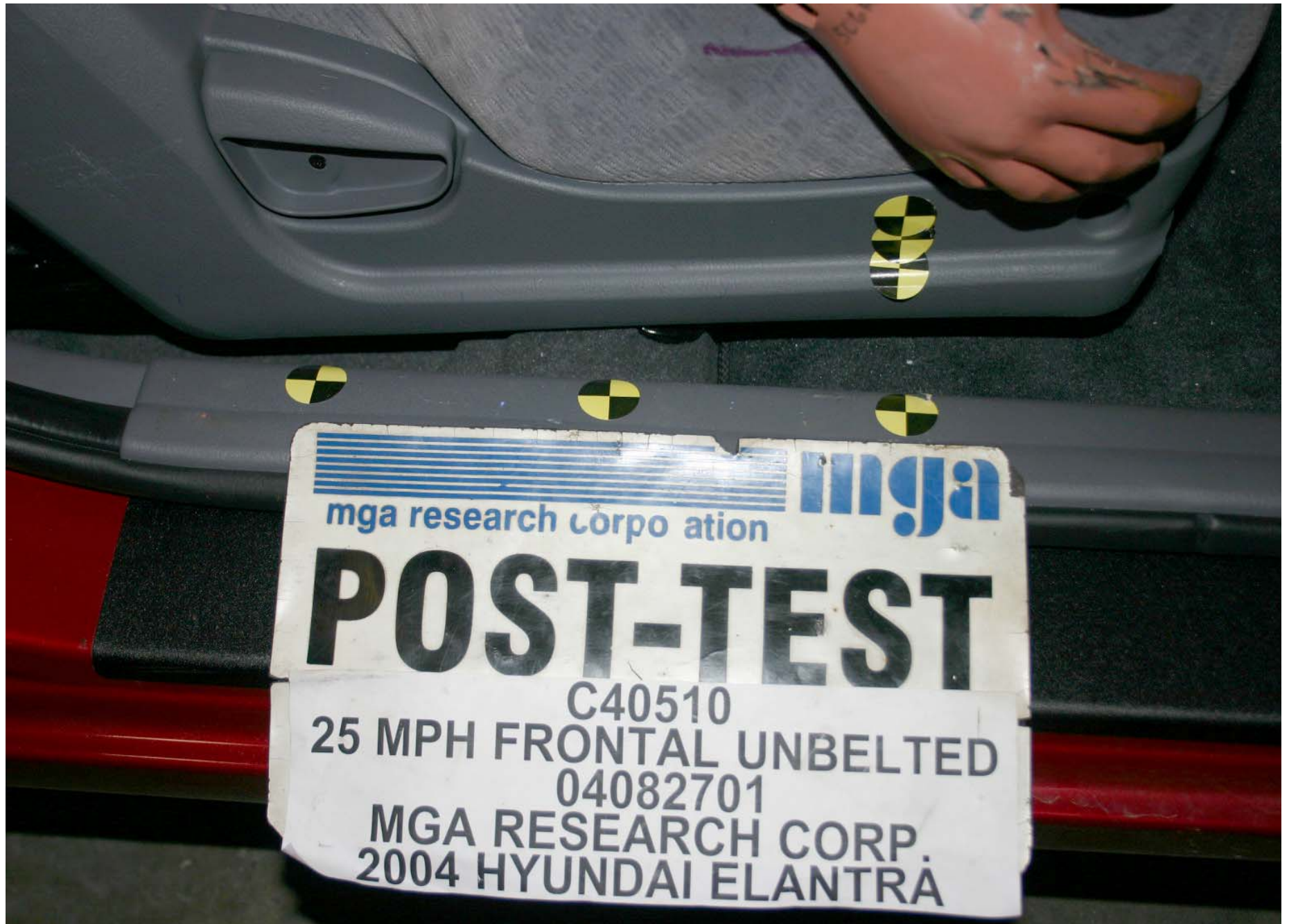
Pre-Test Passenger Dummy Position Right Side View (Door Open)



Post-Test Passenger Dummy Position Right Side View (Door Open)



Pre-Test Passenger Dummy Seat Position



Post-Test Passenger Dummy Seat Position



Pre-Test Passenger Dummy Feet Position



Post-Test Passenger Dummy Feet Position



Pre-Test Passenger Side Knee Bolster View



Post-Test Passenger Side Knee Bolster View



Post-Test Passenger Dummy Head Contact (windshield and Dash)



Post-Test Passenger Head Contact (visor)



Post-Test Passenger Head Contact Right View



Pre-Test Passenger Dummy Knee Contact



Pre-Test Center Rear Passenger Dummy Left Side View



Post-Test Center Rear Passenger Dummy Left Side View



Pre-Test Center Rear Passenger Dummy Side View (Door Open)



Post-Test Center Rear Passenger Dummy Side View (Door Open)



Pre-Test Center Rear Passenger Dummy Left Side Head View



Post-Test Center Rear Passenger Dummy Left Side Head View



Pre-Test Center Rear Passenger Dummy Feet Position



Pre-Test Center Rear Passenger Dummy Knee Bolster View



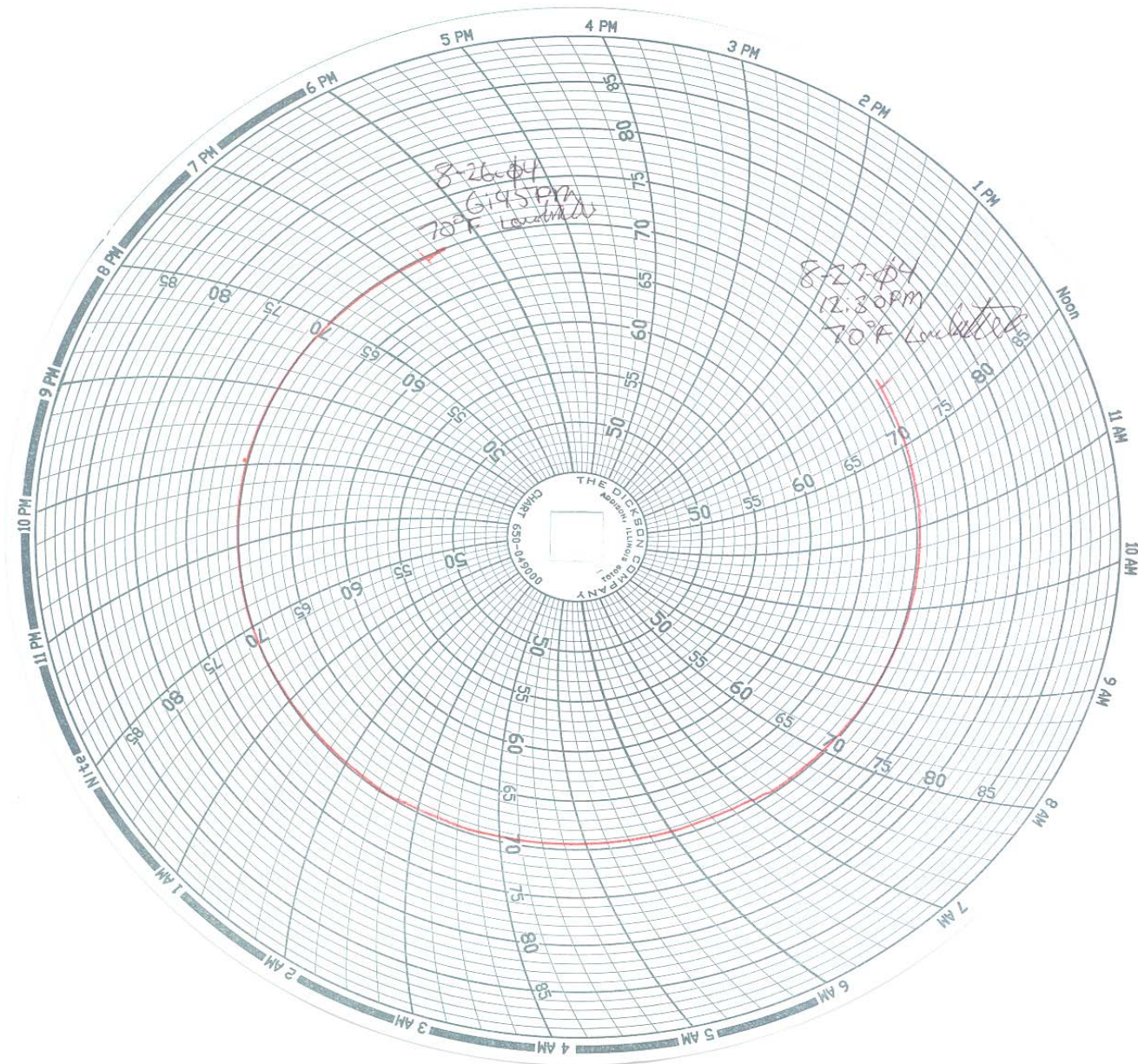
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Post-Test Center Rear Passenger Dummy Head Contact



Vehicle Impact



Temperature Plot

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Pre-Test 5th Fem. P1 Driver Dummy Left Side Head Position View



Post-Test 5th Fem. P1 Driver Dummy Left Side Head Position View



Pre-Test 5th Fem. P1 Driver Dummy Right Side Head Position View



Post-Test 5th Fem. P1 Driver Dummy Right Side Head Position View



Pre-Test 5th Fem. P1 Driver Dummy Left Side Mid Position View



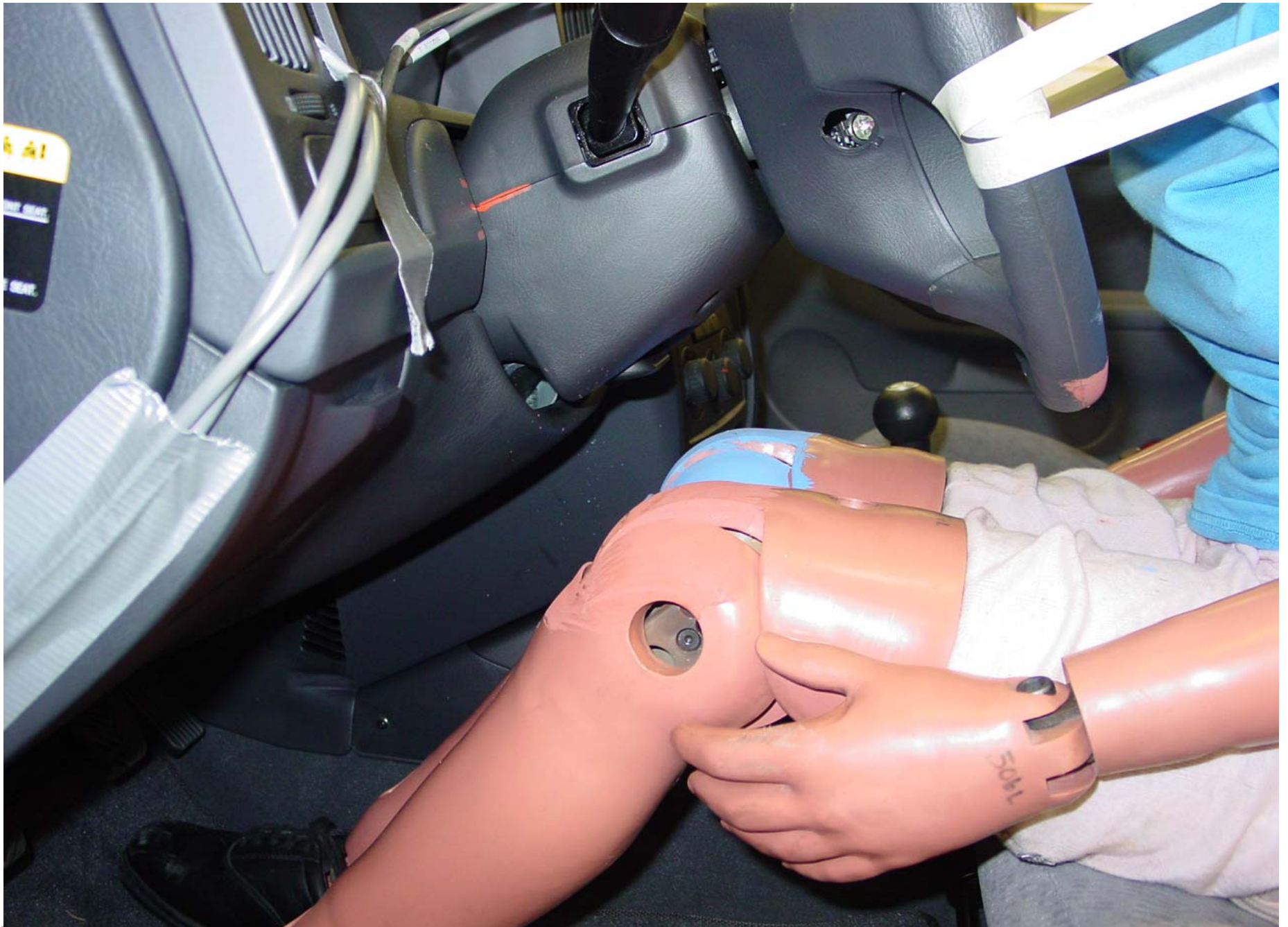
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Post-Test 5th Fem. P1 Driver Dummy Left Side Knee Position View



Pre-Test 5th Fem. P1 Driver Dummy Right Side Knee Position View



Post-Test 5th Fem. P1 Driver Dummy Right Side Knee Position View



Pre-Test 5th Fem. P1 Driver Dummy Seat Position View



Post-Test 5th Fem. P1 Driver Dummy Airbag Left View



Post-Test 5th Fem. P1 Driver Dummy Airbag Right View



Post-Test 5th Fem. P2 Driver Dummy Left Side View



Pre-Test 5th Fem. P2 Driver Dummy Left Side View (Door Open)



Post-Test 5th Fem. P2 Driver Dummy Left Side View (Door Open)



Pre-Test 5th Fem. P2 Driver Dummy Right Side View (Door Open)



Post-Test 5th Fem. P2 Driver Dummy Right Side View (Door Open)



Pre-Test 5th Fem. P2 Driver Dummy Left Side Head Position View



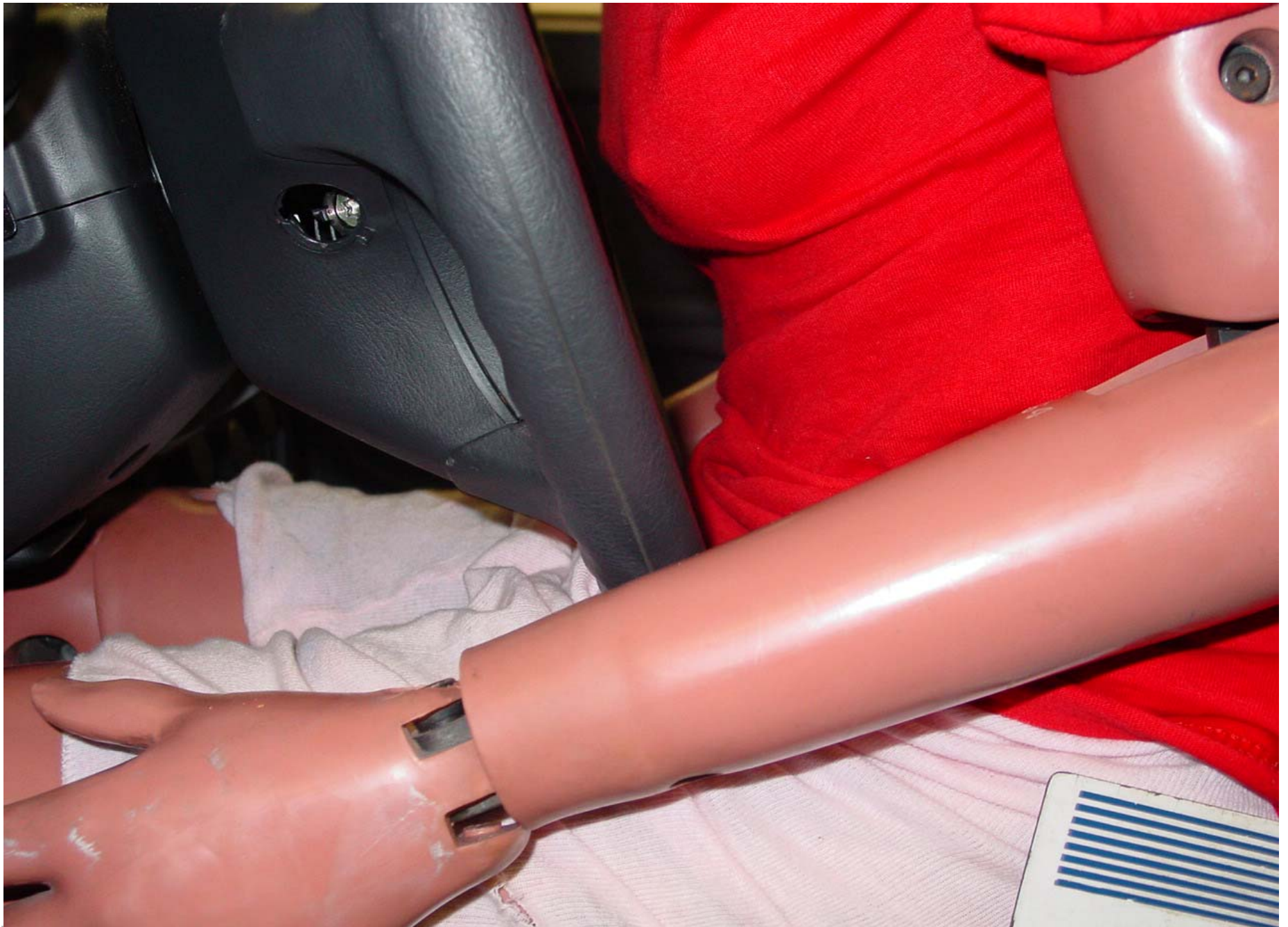
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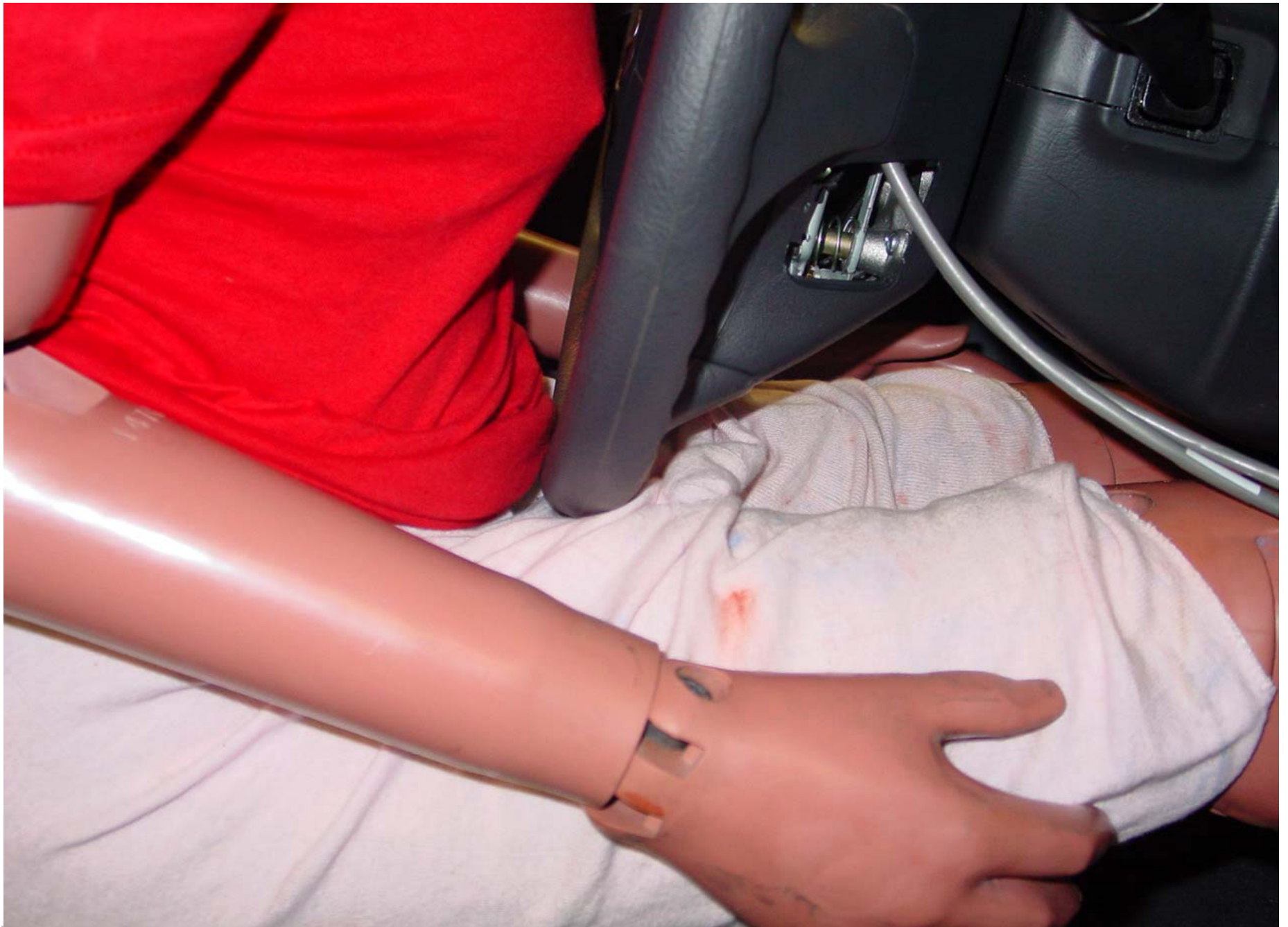
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Post-Test 5th Fem. P2 Driver Dummy Right Side Mid Position View



Pre-Test 5th Fem. P2 Driver Dummy Left Side Knee Position View



Pre-Test 5th Fem. P2 Driver Dummy Right Side Knee Position View



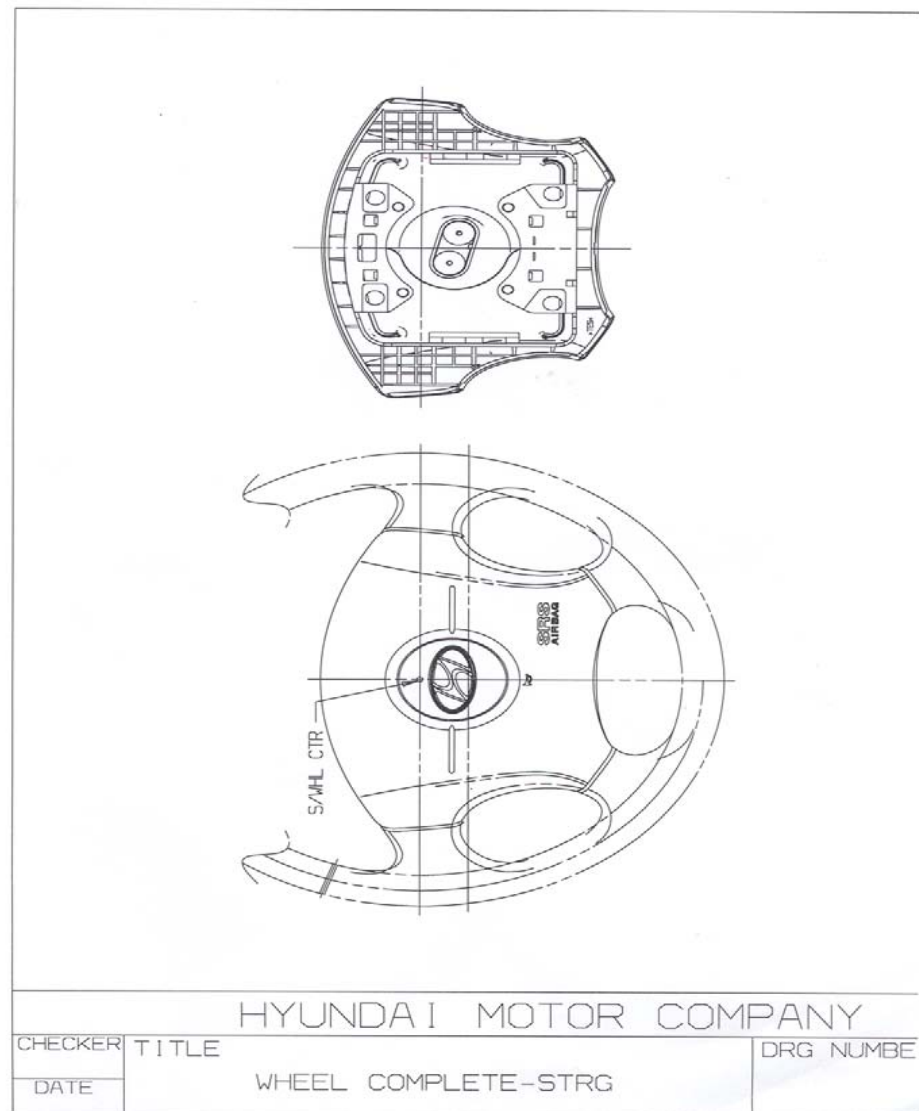
Post-Test 5th Fem. P2 Driver Dummy Airbag Left View



Post-Test 5th Fem. P2 Driver Dummy Head Contact Right View (visor)



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Geometric Center - Passenger Airbag (2004 Hyundai Elantra)

APPENDIX E
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DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

Newborn

Section A

Car Bed



Cosco Dream Ride Car Bed With Belt, Middle Seat Track



Cosco Dream Ride Car Bed With Belt, Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS



Britax Handle With Care 191 With Belt, Forward Seat Track,
Handle Down



Britax Handle With Care 191 With Belt, Middle Seat Track,
Handle Down



Britax Handle With Care 191 With Belt, Rearward Seat Track,
Handle Down



Britax Handle With Care 191 Unbelted, Forward Seat Track,
Handle Down

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS

E-3



Britax Handle With Care 191 Unbelted, Middle Seat Track, Handle Down



Britax Handle With Care 191 Unbelted, Rearward Seat Track, Handle Down



Britax Handle With Care 191 Fwd Facing Unbelted, Forward Seat Track, Handle Down



Britax Handle With Care 191 Fwd Facing Unbelted, Middle Seat Track, Handle Down

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS



Britax Handle With Care 191 Fwd Facing Unbelted,
Rearward Seat Track, Handle Down



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS

E-15



Evenflo First Choice 204 With Belt, Forward Seat Track,
Handle Up



Evenflo First Choice 204 With Belt, Middle Seat Track,
Handle Up



Evenflo First Choice 204 With Belt, Rearward Seat Track,
Handle Up



Evenflo First Choice 204 Unbelted, Forward Seat Track,
Handle Up

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS

E-16



Evenflo First Choice 204 Unbelted, Middle Seat Track, Handle Up



Evenflo First Choice 204 Unbelted, Rearward Seat Track, Handle Up



Evenflo First Choice 204 Fwd Facing Unbelted, Forward Seat Track, Handle Up



Evenflo First Choice 204 Fwd Facing Unbelted, Middle Seat Track, Handle Up

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS



Evenflo First Choice 204 Fwd Facing Unbelted,
Rearward Seat Track, Handle Up



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS

E-8



Graco Infant W/ Base With Belt, Forward Seat Track, Handle Up



Graco Infant W/ Base With Belt, Middle Seat Track, Handle Up



Graco Infant W/ Base With Belt, Rearward Seat Track, Handle Up



Graco Infant W/ Base Unbelted, Forward Seat Track, Handle Up

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS

E-9



Graco Infant W/ Base Unbelted, Middle Seat Track, Handle Up



Graco Infant W/ Base Unbelted, Rearward Seat Track, Handle Up



Graco Infant W/ Base Fwd Facing Unbelted, Forward Seat Track, Handle Up



Graco Infant W/ Base Fwd Facing Unbelted, Middle Seat Track, Handle Up

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS



Graco Infant W/ Base Fwd Facing Unbelted,
Rearward Seat Track, Handle Up

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS

E-11



Graco Infant W/O Base With Belt, Forward Seat Track,
Handle Up



Graco Infant W/O Base With Belt, Middle Seat Track,
Handle Up



Graco Infant W/O Base With Belt, Rearward Seat Track,
Handle Up



Graco Infant W/O Base Unbelted, Forward Seat Track,
Handle Up

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS



Graco Infant W/O Base Unbelted, Middle Seat Track, Handle Up



Graco Infant W/O Base Unbelted, Rearward Seat Track, Handle Up



Graco Infant W/O Base Fwd Facing Unbelted, Forward Seat Track, Handle Up



Graco Infant W/O Base Fwd Facing Unbelted, Middle Seat Track, Handle Up

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section B

Rear Facing CRS



Graco Infant W/O Base Fwd Facing Unbelted,
Rearward Seat Track, Handle Up



Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Fwd Facing With Belt,
Forward Seat Track



Britax Roundabout 161 Fwd Facing With Belt,
Middle Seat Track



Britax Roundabout 161 Fwd Facing With Belt,
Rearward Seat Track



Britax Roundabout 161 Fwd Facing Unbelted,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Fwd Facing Unbelted,
Middle Seat Track



Britax Roundabout 161 Fwd Facing Unbelted,
Rearward Seat Track



Britax Roundabout 161 Rear Facing With Belt,
Forward Seat Track



Britax Roundabout 161 Rear Facing With Belt,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Rear Facing With Belt,
Rearward Seat Track



Britax Roundabout 161 Rear Facing Unbelted,
Forward Seat Track



Britax Roundabout 161 Rear Facing Unbelted,
Middle Seat Track



Britax Roundabout 161 Rear Facing Unbelted,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS

E-18



Century Encore Fwd Facing With Belt, Forward Seat Track



Century Encore Fwd Facing With Belt, Middle Seat Track



Century Encore Fwd Facing With Belt, Rearward Seat Track



Century Encore Fwd Facing Unbelted, Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Century Encore Fwd Facing Unbelted, Middle Seat Track



Century Encore Fwd Facing Unbelted, Rearward Seat Track



Century Encore Rear Facing With Belt, Forward Seat Track



Century Encore Rear Facing With Belt, Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS

E-20



Century Encore Rear Facing With Belt, Rearward Seat Track



Century Encore Rear Facing Unbelted, Forward Seat Track



Century Encore Rear Facing Unbelted, Middle Seat Track



Century Encore Rear Facing Unbelted, Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Unbelted 5th Percentile Female Reactivation, Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Fwd Facing With Belt, Forward Seat Track



Evenflo Medallion 254 Fwd Facing With Belt, Middle Seat Track



Evenflo Medallion 254 Fwd Facing With Belt,
Rearward Seat Track



Evenflo Medallion 254 Fwd Facing Unbelted,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Fwd Facing Unbelted,
Middle Seat Track



Evenflo Medallion 254 Fwd Facing Unbelted,
Rearward Seat Track



Evenflo Medallion 254 Rear Facing With Belt,
Forward Seat Track



Evenflo Medallion 254 Rear Facing With Belt,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Rear Facing With Belt,
Rearward Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,
Forward Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,
Middle Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

12 Month

Section C

Forward Facing Convertible CRS



Unbelted 5th Percentile Female Reactivation, Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

Section C

Forward Facing Convertible CRS



3-Year-Old Fwd Facing Britax Roundabout Belted,
Forward Seat Track



3-Year-Old Fwd Facing Britax Roundabout Belted,
Middle Seat Track



3-Year-Old Fwd Facing Britax Roundabout Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

Section C

Forward Facing Convertible CRS



3-Year-Old Fwd Facing Century Encore Belted,
Forward Seat Track



3-Year-Old Fwd Facing Century Encore Belted,
Middle Seat Track



3-Year-Old Fwd Facing Century Encore Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

Section C

Forward Facing Convertible CRS



3-Year-Old Fwd Facing Evenflo Medallion Belted,
Forward Seat Track



3-Year-Old Fwd Facing Evenflo Medallion Belted,
Middle Seat Track



3-Year-Old Fwd Facing Evenflo Medallion Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat

E-29



3-Year-Old Century Next Step Belted, Forward Seat Track



3-Year-Old Century Next Step Belted, Middle Seat Track



3-Year-Old Century Next Step Belted,
Rearward Seat Track



3-Year-Old Century Next Step Cinched With Harness,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat



3-Year-Old Century Next Step Cinched With Harness,
Middle Seat Track



3-Year-Old Century Next Step Cinched With Harness,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation, Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat



3-Year-Old Cosco High Back Booster Belted,
Forward Seat Track



3-Year-Old Cosco High Back Booster Belted,
Middle Seat Track



3-Year-Old Cosco High Back Booster Belted,
Rearward Seat Track



3-Year-Old Cosco High Back Booster Cinched With Harness,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat



3-Year-Old Cosco High Back Booster Cinched With Harness,
Middle Seat Track



3-Year-Old Cosco High Back Booster Cinched With Harness,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

6 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat

E-33



6-Year-Old Century Next Step Booster Cinched With Harness,
Forward Seat Track



6-Year-Old Century Next Step Booster Cinched With Harness,
Middle Seat Track



6-Year-Old Century Next Step Booster Cinched With Harness,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

6 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat



6-Year-Old Cosco High Back Booster Belted,
Forward Seat Track



6-Year-Old Cosco High Back Booster Belted,
Middle Seat Track



6-Year-Old Cosco High Back Booster Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

6 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat

E-35



6-Year-Old Evenflo Right Fit Booster Belted, Forward Seat Track



6-Year-Old Evenflo Right Fit Booster Belted, Middle Seat Track



6-Year-Old Evenflo Right Fit Booster Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

No CRS



3-Year-Old Unbelted, Forward Seat Track, Position 1



3-Year-Old Unbelted, Forward Seat Track, Position 2



3-Year-Old Unbelted, Forward Seat Track, Position 3



3-Year-Old Unbelted, Forward Seat Track, Position 4

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)
3 Year Old No CRS



3-Year-Old Unbelted, Forward Seat Track, Position 5



3-Year-Old Unbelted, Forward Seat Track, Position 6



3-Year-Old Unbelted, Forward Seat Track, Position 7



3-Year-Old Unbelted, Middle Seat Track, Position 1

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)
3 Year Old No CRS



3-Year-Old Unbelted, Middle Seat Track, Position 2



3-Year-Old Unbelted, Middle Seat Track, Position 3



3-Year-Old Unbelted, Middle Seat Track, Position 4



3-Year-Old Unbelted, Middle Seat Track, Position 5

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

No CRS

E-39



3-Year-Old Unbelted, Middle Seat Track, Position 6



3-Year-Old Unbelted, Middle Seat Track, Position 7



3-Year-Old Unbelted, Rearward Seat Track, Position 1



3-Year-Old Unbelted, Rearward Seat Track, Position 2

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

3 Year Old

No CRS



3-Year-Old Unbelted, Rearward Seat Track, Position 3



3-Year-Old Unbelted, Rearward Seat Track, Position 4



3-Year-Old Unbelted, Rearward Seat Track, Position 5



3-Year-Old Unbelted, Rearward Seat Track, Position 6

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)
3 Year Old No CRS



3-Year-Old Unbelted, Rearward Seat Track, Position 7



Unbelted 5th Percentile Female Reactivation, Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)
6 Year Old No CRS



6-Year-Old Unbelted, Forward Seat Track, Position 1



6-Year-Old Unbelted, Forward Seat Track, Position 2



6-Year-Old Unbelted, Forward Seat Track, Position 3



6-Year-Old Unbelted, Forward Seat Track, Position 4

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)
6 Year Old No CRS



6-Year-Old Unbelted, Forward Seat Track, Position 4, Side View



6-Year-Old Unbelted, Middle Seat Track, Position1



6-Year-Old Unbelted, Middle Seat Track, Position 2



6-Year-Old Unbelted, Middle Seat Track, Position 3

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)
6 Year Old No CRS



6-Year-Old Unbelted, Middle Seat Track, Position 4



6-Year-Old Unbelted, Middle Seat Track, Position 4, Side View



6-Year-Old Unbelted, Rearward Seat Track, Position 1



6-Year-Old Unbelted, Rearward Seat Track, Position 2

DOT/NHTSA 208 Suppression Test – 2004 Hyundai Elantra (C40510)

6 Year Old

No CRS



6-Year-Old Unbelted, Rearward Seat Track, Position 3



6-Year-Old Unbelted, Rearward Seat Track, Position 4



6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Side View



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

APPENDIX F
INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO. 506 (LOW RISK DEPLOYMENT P1)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	J10866	Endevco	2/23/04
Head Y	J11548	Endevco	2/23/04
Head Z	AK972	Endevco	2/23/04
Neck Load Cell	1673	Denton	6/22/04
Chest X	A12-A14	Entran	2/04/04
Chest Y	L17-Z13	Entran	2/04/04
Chest Z	L18-N01	Entran	2/04/04
Chest Displacement	506	Servo	2/24/04
Left Femur Load Cell	86	GSE	6/08/04
Right Femur Load Cell	85	GSE	6/08/04

INSTRUMENTS FOR DRIVER DUMMY NO. 505 (LOW RISK DEPLOYMENT P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	APYN0	Endevco	2/20/04
Head Y	ALFJ7	Endevco	2/20/04
Head Z	APYN3	Endevco	2/20/04
Neck Load Cell	1703	Denton	2/25/04
Chest X	AKAD6	Endevco	4/16/04
Chest Y	AM748	Endevco	4/16/04
Chest Z	AHTF1	Endevco	4/16/04
Chest Displacement	505	Servo	3/30/04
Left Femur Load Cell	1362	GSE	3/03/04
Right Femur Load Cell	1361	GSE	3/03/04